A review of the cost-effectiveness of individual level behaviour change interventions
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Summary

Recent publications, including the Department of Health’s Healthy Lives, Healthy People White Paper and Marmot’s Fair Society, Healthy Lives review, emphasise the importance of prevention in helping to improve the nation’s health and reduce health inequalities. An estimated 2.5% of NHS funding in the North West is currently spent on preventive services annually (compared to around 3.6% nationally), with most being spent on maternal and child health services.

Behaviour change interventions (such as raising people’s awareness through providing brief advice) are one example of a preventative strategy which can help to improve health and quality of life outcomes, in both the shorter and longer term. Individual behaviour, the focus of this report, is generally easier to change than the social or environmental circumstances contributing to health outcomes.

Evidence for the effectiveness of brief interventions delivered at an individual level, generally provided through primary care, is strongest for smoking cessation and reducing harmful alcohol consumption.

The cost-effectiveness of brief interventions is strongest for interventions among high risk drinkers. Brief interventions for smoking (in a variety of settings and age groups) can generate quality adjusted life year (QALY) gains at a low cost, well below National Institute for Health and Clinical Excellence (NICE) thresholds.

The table below summarises the evidence for effectiveness and cost-effectiveness of brief interventions across the major lifestyle topics considered in this report:

Summary table of the cost-effectiveness evidence for brief interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Effectiveness rating</th>
<th>Cost-effectiveness rating</th>
<th>Public sector costs saved</th>
<th>Quality of life gained</th>
<th>Incremental cost per QALY</th>
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<tbody>
<tr>
<td>Preventing harmful alcohol use</td>
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<tr>
<td>Brief interventions in primary care for high risk drinkers</td>
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<td>Dominant - £13,500</td>
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<td>Brief interventions in A&amp;E</td>
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<td>Smoking cessation</td>
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<td>Brief interventions in primary care</td>
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<td>£500 – £1,400</td>
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<tr>
<td>Reducing STIs and teenage conceptions</td>
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<td>One on one interventions in primary care</td>
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<td>£3,200 – £96,000</td>
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<td>Promoting physical activity and healthy weight</td>
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<tr>
<td>Counselling by primary care staff</td>
<td>**</td>
<td>*</td>
<td>*</td>
<td>£2,300</td>
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</tbody>
</table>

Source: NWPHO/CPH based on Health England 2009

Key

*** Good evidence for brief interventions in this setting
** Moderate evidence for brief interventions in this setting
* Limited evidence for brief interventions in this setting

The average costs of an intervention differ depending on the duration of the intervention, which health professional delivers it and the topic covered. For example, an intervention delivered by a GP is around double the cost of that delivered by a nurse, in terms of salary costs.

Training for nurses and other health professionals to undertake more brief interventions could therefore potentially lead to real cost savings or increased efficiencies. This is providing it can be shown that they are equally as effective as GPs in delivering these interventions, and that other costs (such as administration) are not increased.

1 Cost saving compared against a ‘do nothing’ option (i.e. the intervention provided both additional health benefits and an overall reduced health service cost).
1. INTRODUCTION

Behaviour change interventions are preventive strategies delivered at an individual, community or societal level which promote positive health behaviours and choices in an appropriate setting. This report focuses on interventions conducted at an individual level including brief advice, brief intervention and motivational interviewing, across different lifestyle areas, and considers the economic case for embedding behaviour change training into staff training across the health economy in the North West. There is currently no evidence to explicitly demonstrate the effect of behaviour change training. However, the evidence available to illustrate the effectiveness of brief interventions can be considered a strong argument in favour of embedding effective behaviour change training into the training that is available for health professionals across the North West.

Recent publications such as *High Quality Care for All*, Fair Society, Healthy Lives and regional responses such as *Healthier Horizons for the North West* emphasise the importance of putting prevention at the heart of everything health services do, as outlined in the Quality, Innovation, Productivity and Prevention (QIPP) framework. There is now a body of evidence on the effectiveness of interventions in providing a contribution to the delivery of preventive services.

A glossary of terms can be found at the back of this report.

**Behaviour change interventions**

This report will consider the economic case for implementing behaviour change interventions across the North West to tackle issues such as alcohol consumption at increasing and higher risk levels, smoking, obesity and increasing physical activity levels both in and out of the workplace. Regional reports such as *Our Life in the North West* have highlighted the need for evidence based interventions to be scaled to the size of the problem at hand. These interventions cannot adopt a ‘one-size-fits-all approach’ and must be designed so that they reflect and meet the needs, profile, aspirations and lifestyles of the targeted population.

Public Health Guidance published by the National Institute for Health and Clinical Excellence (NICE) states that attempts to support or promote behaviour change can be categorised into four areas:

- Policy
- Education or communication
- Technologies
- Resources

This report will focus on the delivery of education or communication based interventions. The most commonly used methods employed to drive behaviour change at an individual level are brief advice, brief intervention and motivational interviewing. Definitions of these methods are provided in Box 1.
Box 1: Methods of individual level behaviour change interventions

Individual level behaviour change interventions can be delivered through different methods. These include:

- **Brief advice** is proactively raising awareness of, and assessing a person’s willingness to engage in further discussion about, healthy lifestyle issues. It is usually given opportunistically and linked to the supply of a medicine, product or service.

- **Brief interventions** provide a structured way to deliver advice and constitute a step beyond brief advice as they involve the provision of more formal help, such as arranging follow-up support. Brief interventions aim to equip people with tools to change attitudes and handle underlying problems.

- **Motivational interviewing** is described as a process of exploring a person’s motivation to change through interview in order to assist them towards a state of action. The techniques used are adaptations of counselling skills and particular attention is paid to the listening skills of the interviewer.

The approaches do not have to remain mutually exclusive, brief interventions may contain brief advice and may use a motivational interviewing approach in the delivery.

Current statistics make a strong case for improving the health behaviours of individuals across the North West. The region has the second highest rate for alcohol-related hospital admissions and six out of the ten local authority areas with the highest rates of hospital admissions for harmful drinking in people aged sixteen or over are in the North West. Life expectancy for males and females, deaths from smoking and the proportion of healthy eating adults are all significantly worse than the England average.

Employment rates in Britain are high relative to most other countries. Nationally and in the North West around seven out of ten of working age people are already in a job and an estimated three-fifths of most people’s working day is spent at work.

The workplace has enormous potential as a setting for improving the health of the adult population, by providing access to a large number of people, many of whom are at risk of adverse health effects. Ill health can also impair economic productivity even if it does not lead to immediate absence.

It is estimated that in the UK, the annual costs of sickness absence together with ill health related worklessness are £100 billion or more, greater than the total annual budget for the NHS. The region also has one of the highest rates of incapacity benefit claimants in England with 367,420 individuals claiming this benefit across the North West (8.7% of the region’s working age population).

In *High Quality Care for All* Lord Darzi reflected clinicians’ desire to place quality at the heart of the NHS, also demonstrated in the QIPP framework emphasising quality, innovation, prevention and productivity to deliver a high quality service. Prevention is a key component of ensuring a healthy workforce which is able to deliver high quality service and there is good evidence to demonstrate that prevention and early intervention improve efficiency and save NHS resources. Common mental health problems and musculoskeletal disorders are the major causes of sickness absence and worklessness due to ill health. This is compounded by a lack of appropriate and timely diagnosis and intervention. The costs to the taxpayer including benefit costs, additional health costs and forgone taxes are estimated to total over £60 billion.

Behaviour change interventions also have the potential to impact upon wider public health outcomes such as encouraging healthier lifestyle behaviours and supporting people in maintaining their own health as identified in the *Choosing Health: Making Healthier Choices Easier* White Paper. Individuals with average and above average levels of wellbeing have been shown to demonstrate higher levels of social capital and community belonging, which can in turn reduce inequalities and health issues associated with deprivation, for example high smoking levels and poor diets.

This report aims to synthesise policy, evidence and intelligence related to individual level behaviour within the public sector and those conducted in the workplace.
2. POLICY

The Healthy Lives, Healthy People White Paper (see Box 2) outlined the Coalition Government’s plans for public health policy. It is therefore important to note that while some of the policies discussed in this section, such as the QIPP framework, will be strengthened under the Coalition Government, all of these policies are subject to change and the exact position of the Government is unknown at the time of writing.

Boxes 2 and 3 provide an overview of past national and regional policies which have emphasised the importance of preventive services to improving health and wellbeing both in and out of the workplace.

**Box 2: National policy**

  - Emphasises the need for personalised preventive services that are focused on delivering the best health outcomes for citizens.
  - Proposes using innovative approaches to behaviour change to support better practice and the creation of the Public Health Responsibility Deal to work in partnership with businesses and the voluntary sector to ensure sustained behaviour change is achieved.

- **Liberating the NHS - White Paper (2010)**
  - Aims to put patients at the heart of the NHS and emphasises the importance of giving patients access to information which enables them to make their own choice.
  - Proposes putting clinicians in the driving seat, setting hospitals and providers free to innovate, and with strong incentives to adopt best practice.

- **QIPP Framework (2010)**
  - Recognises the need for transformational change and emphasises quality, innovation, productivity and prevention within the NHS today. It focuses on sustaining quality, improving services and meeting rising demand within the current economic climate.
  - Underlying QIPP is the fundamental belief that in healthcare quality and productivity can go hand-in-hand. The safety of services and the experience of the patient can be improved, whilst costs are reduced.

- **Fair Society Healthy Lives (2010)**
  - Aims to provide evidence for reducing health inequalities resulting from social inequalities. An approach requiring action across all social determinants of health is favoured.
  - Included are policies to ensure a healthy standard of living for all, strengthen the role and impact of ill health prevention and create ‘good’ work for all.

- **NHS Health and Wellbeing Review (2009)**
  - Highlights the benefits of investing in improving staff health and wellbeing. It sets out steps that can be taken to improve this in response to Dame Carol Black’s Working For a Healthier Tomorrow (2009) review of the working age population’s health and wellbeing, focusing on the importance of preventing ill health and the role the workplace can play in promoting health and wellbeing and the developing improved early intervention services.
Box 3: Sub-national strategy

- Living Well Framework (2010)
  - Aims to reduce levels of inequality in health by improving levels of wellbeing.
  - The framework calls on a wide range of organisations to improve public health and levels of wellbeing through their decisions. It suggests that public investment should build on the existing assets that local people and their communities have already.

- Healthier Horizons (2008)
  - Sets out short-term plans along with long-term vision and strategy over the next 10 years, with the objective of NHS organisations focusing far more on promoting health and preventing ill health.
  - The policy suggests organisations must ensure a better understanding of and support for individual patients; engage wisely in partnerships that will support communities; and take the next steps towards delivering NHS services which respond more closely to individual need.

- North West Regional Workplace Health Strategy (2007)
  - This strategy presents a view of workplace health as a continuum along which there are many potential intervention points to help improve the health and wellbeing of the working age population.
  - The strategy suggests that the purpose of workplace health promotion must be to ensure that it allows its employees to lead the healthiest lives they are able to through interventions at both organisational and individual levels.

3. EVIDENCE

Individual behaviour is often easier to change than the social or environmental circumstances contributing to health. The four most commonly used methods employed to drive behaviour change are brief advice, brief intervention, motivational interviewing and social marketing. For the purposes of this report only those interventions conducted at an individual level will be considered (see Box 1). However, it is important to consider that the effects of an intervention or programme may not be restricted to one level. For example, a brief primary care intervention aimed at reducing alcohol consumption among individuals could have an impact on the individual’s behaviour, on the local community or at the population level.

The growing gap between life expectancy and healthy life expectancy indicates that society has been comparatively more successful in controlling life-threatening and life-shortening disease than it has in delaying the onset of long-term conditions that impair health.

Behaviour change interventions can enable people to consider their lifestyles and have a significant impact on their own long-term health status. The most important indicators of healthy living relate to how and what people eat and drink, how active they are and whether they smoke or not.

Delivery of training for behaviour change interventions

Reviews of the evidence regarding one-to-one behaviour change interventions cite factors such as the setting, personal circumstances of clients, staff attributes and the process of delivery as impacting upon the effectiveness of behaviour change interventions. Furthermore, interventions which are underpinned by a clear and coherent theory have been found to be much more effective than those without. Therefore behaviour change theories emanating from health psychology such as the health belief model and theory of planned behaviour may provide a clear foundation for successful interventions.

Evidence suggests that behaviour change interventions may be successful in a number of different healthcare and community settings. The skills of the individual delivering the intervention are of greater importance than their formal role, and the likelihood of the intervention being effective is enhanced if those delivering one-to-one...
behaviour change interventions demonstrate genuine concern for their clients.24 Interventions should also be client-led and tailored to changes within individuals’ lives, as significant events or transition points in people’s lives present an important opportunity for intervening at some or all of the levels. It is during significant events or transition periods that people often make contact with services. Typical transition points include leaving school, entering the workforce, becoming a parent, becoming unemployed, retirement and bereavement.7

Evidence of the effectiveness of training to professionals delivering or providers of brief interventions is limited. While not strictly looking at behavioural interventions, a similar recent research investigation into sexual health training for front line young people’s service providers in the North West found improved self-reported confidence, knowledge and attitudes.25

**Evidence for behaviour change interventions**

The three key questions which need to be answered when assessing the effectiveness of any intervention are do they work, how do they work and how well do they work?

Wanless27 suggested that all preventive interventions should:

- tackle public health objectives and any failures as directly as possible
- be evidence based
- keep costs minimal and less than the expected benefits
- have acceptable distributional effects
- balance the right of the individual to choose their own lifestyle against the adverse impacts those lifestyle choices have on the quality of life of others.

Five criteria have been suggested to evaluate behaviour change interventions7:

1) Reach of the intervention
2) Effectiveness (intended and unintended consequences)
3) Adoption
4) Implementation
5) Maintenance of behaviour change

Evidence suggests that more focused interventions involving a small number of techniques are more effective than interventions involving a large number of techniques. Providing information and facilitating goal setting have been found to be the most helpful techniques when dealing with low income groups.30

NHS North West advocates the use of brief behaviour change interventions tailored to individuals’ needs and aspirations. It suggests health professionals should use every appropriate opportunity to ask about lifestyle, directing individuals to appropriate intervention services if necessary.28

The Department of Health commissioned a review of the effectiveness and cost-effectiveness of public health interventions with the potential to achieve one of the following eight objectives: reducing smoking rates, preventing obesity, preventing the uptake and harm from illicit drug use, reducing the incidence of sexually transmitted infection (STI) and teenage pregnancy, preventing dangerous drinking, promoting breastfeeding, promoting healthy nutrition and promoting health in the elderly. The review found reliable evidence that brief interventions had a moderate, intermediate effect on smoking cessation and high risk drinkers, as did intensive motivational counselling for high risk drinkers and individual risk counselling for reducing STIs and teenage conceptions. There was evidence of a large effect for intensive interventions promoting lifestyle change in terms of promoting healthy nutrition. The report also found reliable evidence for the cost-effectiveness of brief interventions for smoking cessation and high risk drinkers in terms of public sector savings and of individual risk counselling for STIs and teenage pregnancy in terms of quality of life gained. See www.healthengland.org/publications/HealthEnglandReportNo2.pdf
The Department of Health review makes it clear that behaviour change intervention is not just about identifying a ‘one-size-fits-all’ intervention type. When dealing with individual behaviours it is important to have an understanding of what kind of interventions work and are most effective for different groups. Changing behaviours such as smoking, alcohol misuse and poor diet require a long-term commitment to changing complex behaviours; each behaviour has different characteristics and it is unlikely that what works for one behaviour will be transferrable to another.

**Alcohol brief interventions**

Brief interventions have proven to be effective and have become increasingly valuable in the management of individuals with increasing and high risk drinking, thereby filling the gap between primary prevention efforts and more intensive treatment for persons with serious alcohol use disorders. The evidence clearly supports brief interventions delivered in a primary care setting whilst the evidence for other settings remains more limited. Brief interventions also provide a valuable framework to facilitate referral of severe cases of alcohol dependence to specialised treatment.

**Box 4: Recent Initiatives for Alcohol Related Behavioural Interventions in the North West**

- **Manchester Comprehensive Care Pathway Development**
  - NHS Manchester has been working with three NHS Acute Hospital Trusts across the city to implement the Alcohol Identification and Brief Advice (IBA) programmes in each of the Accident and Emergency departments.
  - One of the aims of the project was to reduce the impact of alcohol on the health of patients identified as at risk while attending the Manchester Royal Infirmary (MRI) Emergency Department, improve the management of inpatients and help to target resources aimed at reducing alcohol-related crime. This pilot started in December 2006.
  - Patients seen are asked an initial question: ‘Have you had a drink in the last 12 hours?’ If the answer is positive they are then asked a short series of questions using an evidence based screening tool – currently the Alcohol Use Disorders Identification Test Consumption (AUDIT-C). If they are positive for this then they are given an alcohol brief intervention.

- **Liverpool Alcohol Services Lifestyle Team**
  - Liverpool Primary Care Trust has developed the ‘Lifestyles Team’ – a nurse-led initiative providing alcohol-related interventions in acute and primary care settings. The project was launched in 2004. The team provides screening, assessment, clinical investigations, diagnosis, planned treatment and intervention pathways and referral to alcohol services and specialists in the Liverpool area.
  - Overall the Lifestyle project has adopted an innovative approach to managing alcohol dependency; the emphasis is very much upon patients taking responsibility for their own health. Medication is only used where absolutely necessary, and is there to compliment a comprehensive care plan. By establishing good links in the community, the initiative has built up the confidence of many local GPs who can refer patients for early interventions.

The World Health Organization’s report on the effectiveness and cost-effectiveness of interventions to reduce alcohol-related harm found several factors that affected the success rates of behaviour change interventions. Trends have shown increased effectiveness in men and even very brief interventions were found to be effective in reducing negative alcohol-related outcomes, and this in turn may be enhanced by motivational interviewing.

The use of brief interventions is widely recognised as an effective approach for addressing alcohol issues and the academic literature suggests that strongest evidence of efficacy is found in brief interventions within the realm of psychosocial treatments. The Mesa Grande project is a systematic review that ranks the effectiveness of interventions used for the treatment of an alcohol problem. Of the interventions recommended, brief intervention ranks highest. Investigations into the use of brief interventions provided in non-medical, primary and emergency department settings have concluded that brief interventions are potentially cost-effective in reducing hazardous or harmful alcohol consumption.
Smoking brief interventions

The use of both behavioural and pharmaceutical interventions for supporting smoking cessation was outlined in the Smoking Kills White Paper in 1998. This early policy emphasised the importance of brief smoking cessation interventions delivered opportunistically by healthcare professionals alongside smoking cessation clinics.

Brief interventions for smoking cessation typically take between five and ten minutes and may include some or all of the following: simple opportunistic advice to stop, an assessment of the patient’s commitment to quitting, an offer of pharmacotherapy or behavioural support, provision of self-help material and referral to more intensive support such as the NHS Stop Smoking Services.

Quitting with support from NHS Stop Smoking Services is up to four times more likely to be successful than unsupported quit attempts. Smoking cessation interventions are effective in the short-term; over half of clients setting quit dates remain abstinent at four weeks, and reasonably effective in the long-term with between 13-23% of successful short-term quitters remaining abstinent at 52 weeks (based on self report).

Smoking cessation interventions are effective in promoting abstinence up to one year providing they are of sufficient intensity and with a minimum length of one month. Previous NICE reviews of evidence support the efficacy of doctors delivering brief routine advice and nurses delivering brief structured interventions, evidence reviewed by NICE also suggests that pharmacy led interventions may have a positive effect with one study finding validated quit rates at four weeks of up to 20%.

The success of brief interventions for smoking cessation depends on many factors including willingness to quit, the acceptableness of the intervention and previous quit attempts. The main barriers to the delivery of brief interventions for smoking cessation are lack of time, lack of reimbursement, lack of skills, training or confidence, believing that the intervention is not effective and fear that it might alienate patients.

There is evidence to suggest that group interventions may be more effective than individual interventions, with more clients in group-based interventions achieving abstinence at four weeks. However, both kinds of interventions have shown effectiveness and are crucial elements of a comprehensive smoking cessation scheme. Patients frequently state a preference for one-to-one interventions and these interventions are often the best option in certain contexts where group sessions are simply not feasible (such as in rural areas).

Healthy eating and healthy weight brief interventions

There are many individual barriers to preventing obesity and achieving healthy weight. Possible barriers include lack of time, lack of knowledge about the effect of diet and exercise on health, buying and cooking healthy foods, the cost and availability of healthy foods and opportunities for exercising, personal tastes, the views of family and community members, low levels of fitness, disabilities and low self esteem.

NICE recommends that weight management programmes should include multicomponent behaviour change strategies aimed at increasing physical activity levels, improving eating behaviour, and the quality of diet energy intake. There is good evidence to suggest that multicomponent approaches which provide support on both physical activity and diet together produce more effective weight outcomes than single component interventions.

The National Obesity Observatory (NOO) provides guidance to commissioners on interventions to prevent obesity. The guidance suggests that weight management components of behaviour change interventions should focus on helping the individual decide what best suits their circumstances and what they may be able to sustain in the long-term; this may include a motivational interviewing approach. The physical activity component should focus on activities that fit easily into people’s everyday lives and are tailored to individual circumstances. The dietary component should bring together a number of components such as targeted
advice, dietary modification and goal setting to create an individual and flexible approach tailored towards achieving a balanced, healthy diet in the long-term.

Interventions to prevent weight gain have demonstrated varying degrees of effectiveness. Studies have found them to be most effective amongst older, high income and male participants and least effective among lower income groups, school students and smokers. However, there is some evidence to suggest that intermediate interventions to promote physical activity amongst socially and economically deprived communities are effective, with both exercise consultations and fitness assessments resulting in a maintained increase in physical activity at six months.

In a healthcare setting even very brief interventions have been found to be effective in increasing physical activity in the short-term. However, most studies have focused on GPs providing brief motivational interventions and there is scope for further research on the effectiveness of the delivery of these interventions by other healthcare professionals, in both primary care and specialist care settings. Brief behavioural counselling to encourage fruit and vegetable consumption carried out by nurses in primary care settings has been shown to be effective amongst low income groups, with one study reporting long-term increases in fruit and vegetable consumption.

Current evidence suggests that amongst children, many diet and exercise interventions are ineffective in preventing weight gain but can be effective in increasing physical activity levels and promoting healthy diet.

**Box 5: Wirral PCT Lifestyle and Weight Management Programme**

The Wirral Lifestyle and Weight Management Programme is an intensive 12 week programme tailored to the needs of each participant and combining group and one-to-one sessions. The target is obese individuals (with a BMI over 30) or individuals with a BMI over 28 and two co-existing mortalities (diabetes, hypertension or hyperlipidemia) with the target of a 5% body mass reduction over the 12 weeks and a sustained long-term reduction resulting in 10% body mass reduction over 12 months.

Research suggests that interventions using telephone interviewing as the primary intervention method are effective in achieving behaviour change. The effectiveness of the internet as a primary intervention method has not yet been proven. Further research is required into the use of these and other modern technologies as both are potentially far reaching and cost-effective intervention methods and should be of growing interest to public health practitioners.

**Sexual health brief interventions**

Individual level behaviour change interventions which seek to reduce the risk of acquiring or passing on a sexually transmitted infection (STI) have great value especially in the absence of primary prevention strategies such as vaccinations. Even when these do become available, behaviour change will remain an integral part of sexual health strategies. NICE have identified one-to-one interventions as integral to the modernisation of sexual health services.

Individual engagement in risky sexual behaviour can be influenced by a number of factors including low self esteem, lack of knowledge about the risks, the availability of resources, lack of skills (e.g. using condoms), lack of negotiation skills (e.g. refusing unprotected sexual activity) and the attitudes and prejudices of society which can affect access to services.

Brief, opportunistic sexual health interventions have been found to be successful in reducing the incidence of STIs, increasing condom and contraception use, increasing the number of individuals screened for chlamydia and reducing conceptions among under 18s. Studies of interventions ranging from four, twenty minute one-to-one motivational interview sessions to a single 90 minute session have demonstrated long-term reductions in the incidence of STIs. However, evidence suggests that the effects of interventions decrease and disappear with time after the six month follow-up.
One-to-one interventions have been shown to have a significant effect amongst a range of population groups including heterosexuals, young people, homosexual men, adolescents, low income mothers and drug users, and in a variety of settings including general practice, pharmacies, genitourinary medicine (GUM) clinics, workplace and military settings. NICE recommend that one-to-one sexual interventions should be a routine part of primary care through contraceptive services, enhanced general practice services and pharmacists trained in this area.

There remain significant gaps in research relating to individual sexual health interventions. These include difficulties in translating evidence of effectiveness from clinical trials into a real world setting and the lack of evidence for sustained behaviour change, with few trials reporting long-term follow-up. When dealing with behaviour phenomena such as sexuality, it is also imperative to remember that such behaviours are not always subject to ‘cognitive control’ and so individual behaviour change in many cases will be of limited impact. Nonetheless, this does not diminish from the substantial evidence demonstrating the efficacy of individual behaviour change interventions in reducing the risk of sexually transmitted infections nor the vital part that these interventions play within broader sexual health strategies.

**Workplace brief interventions**

Great progress has been made across the UK in improving health and safety within the workplace, but employers are not only responsible for protecting the health of employees. It is widely accepted that employers must adopt an approach that optimises the opportunity for employees to improve their own health and wellbeing.

A shift in attitudes is necessary to ensure that employers and employees recognise the key role the workplace can play in promoting health and wellbeing. The *NHS Health and Wellbeing Review* has cited the importance of supporting and improving the health and wellbeing of its workforce and has placed this at the heart of the NHS. Within the context of the workplace, brief interventions can reach a great number of people, including those people who would not seek professional help of their own accord, at a low cost to the organisation.

**Brief interventions in the workplace**

**Mental wellbeing**

Dame Carol Black’s *Review of the Health of Britain’s Working Age Population* identified that over £100 billion is lost to the economy because of working age ill health and associated sickness absence, of this it is estimated that between £30-40 billion can be attributed to mental ill health. Overall, a cost-benefit analysis conducted as part of the *Foresight Project: Mental Capital and Wellbeing Project* suggests that certain components of organisation-wide approaches to promoting mental wellbeing (such as carrying out an annual stress and wellbeing audit and integrating occupational health professionals with primary care) can produce important economic benefits.

Work has been found to have an important role in promoting mental wellbeing and is an important determinant of self esteem and identity. However, work can also have negative effects on mental health. It is estimated that 17% of the working population think that their job is extremely or very stressful. Stress is not a medical condition, but research shows that prolonged stress is linked to psychological conditions such as anxiety and depression as well as physical conditions such as heart disease, back pain and headache. Therefore, it is important that efforts to improve wellbeing at work and the effects of work-related issues affecting people’s health and wellbeing must be prevented in the first place.
Smoking

Employers are not legally obliged to help employees to stop smoking; however, evidence suggests that those who do provide cessation support could benefit from reduced sickness absence and increased productivity, whilst promoting healthy living and non smoking within society.\textsuperscript{71}

A review of workplace interventions for smoking cessation conducted to inform the development of NICE intervention guidance\textsuperscript{71} identified evidence that a key way for employers to encourage smokers to quit is by offering smoking cessation support. Such support was particularly important when provided within the context of workplace smoking bans. It is often the case that different strategies are chosen by individuals when trying to quit smoking and therefore making a variety of smoking cessation strategies available may meet the needs of more employees and increase participation in the workplace programmes. A recent Cochrane review found strong evidence that interventions for smoking cessation, including individual and group counselling, are equally effective when offered in the workplace.\textsuperscript{72}

Modelling of the net financial benefits to employers of a range of smoking cessation interventions delivered in the workplace found that all interventions taken into consideration were successful in reducing the number of employees who smoked which in turn led to increased productivity compared to ‘no intervention’. Most interventions began to produce a net financial benefit after two years (the cost of the intervention subtracted from the productivity benefits) and some of the cheaper interventions reviewed, such as brief advice, led to a net financial benefit after just one year.\textsuperscript{48}

Physical activity

Physically active employees are less likely to suffer from major health problems, less likely to take sickness leave and less likely to have an accident at work.\textsuperscript{73} Evidence suggests that increasing activity levels will help prevent and manage over 20 conditions and diseases including cancer, coronary heart disease, diabetes and obesity. It can also help to promote mental wellbeing.\textsuperscript{74}

The cost of physical inactivity in England, including the direct costs of treatment for major lifestyle-related diseases and the indirect costs caused through sickness absence, has been estimated at £8.2 billion a year.\textsuperscript{76}
4. INTELLIGENCE

NHS North West has an annual budget of over £12 billion\textsuperscript{76} and estimates that around 2.51\% of NHS funding in the North West was spent on prevention in 2008/09 when calculated as a percentage of gross operating costs (based on the average spend per PCT).

The Department of Health estimates that each year around 3.6\% of health expenditure is directed towards preventive services.\textsuperscript{78} England spends around £1,767 million of this annually on primary prevention. The breakdown of primary preventive spending in England is provided in Table 1; 4.3\% of this expenditure is in the prevention of non-communicable diseases and a further 0.1\% is occupational healthcare. These national figures have been used to estimate the breakdown of spending on primary prevention in the North West.

**Table 1: Estimated expenditure on primary prevention services in England, 2009**

<table>
<thead>
<tr>
<th>National Primary Prevention Expenditure (£m)</th>
<th>Proportion of prevention expenditure</th>
<th>Estimated primary prevention expenditure in the North West (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal and child health, family planning and counselling</td>
<td>840</td>
<td>17.8%</td>
</tr>
<tr>
<td>School health services</td>
<td>44</td>
<td>0.9%</td>
</tr>
<tr>
<td>Prevention of communicable diseases</td>
<td>284</td>
<td>6%</td>
</tr>
<tr>
<td>Prevention of non-communicable diseases</td>
<td>201</td>
<td>4.3%</td>
</tr>
<tr>
<td>Occupational healthcare</td>
<td>4</td>
<td>0.1%</td>
</tr>
<tr>
<td>All other miscellaneous public health services</td>
<td>394</td>
<td>8.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,767</strong></td>
<td><strong>37.5%</strong></td>
</tr>
</tbody>
</table>

Source: Health England 2009

**Cost of brief interventions**

The estimated cost of delivering an individual brief intervention varies depending on the duration of the intervention, the health professional delivering the intervention and the topic of intervention. Table 2 provides the cost of a brief opportunistic intervention for various behaviours. The costs are calculated by the time taken for the event multiplied by the unit cost for the relevant healthcare professional and have been standardised to 2009 prices to allow for inflation.

**Table 2: Average cost of a brief opportunistic intervention**

<table>
<thead>
<tr>
<th>Intervention type</th>
<th>Cost (five to ten minute brief intervention)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Practitioner</td>
</tr>
<tr>
<td>Brief advice: alcohol</td>
<td>£23.50</td>
</tr>
<tr>
<td>Sexual health: risk assessment</td>
<td>£21.74</td>
</tr>
<tr>
<td>Smoking intervention</td>
<td>£20.82</td>
</tr>
<tr>
<td><strong>Average intervention cost</strong></td>
<td><strong>£22.02</strong></td>
</tr>
</tbody>
</table>

As Table 2 illustrates, the cost of a behaviour change intervention varies depending upon the healthcare professional delivering it; a ten minute intervention delivered by a practice nurse is just under half the cost of an intervention delivered by a GP. However, there is little available evidence comparing practice nurse led and GP led interventions in terms of their effectiveness in changing individual behaviour. Nurse led interventions are potentially less costly than those delivered by GPs, and would therefore be a worthwhile use of financial resources providing that there is evidence to suggest they are equally as effective as behaviour change interventions delivered by GPs. In addition, there would need to be evidence that administration and other costs are not increased.

**Cost-effectiveness of brief interventions**

**Box 6: Measuring cost-effectiveness**

**What is economic evaluation?**

Economic evaluation is a comparative analysis of alternative courses of action in terms of both their costs and consequences. There are four main types of economic evaluation: cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis and cost-minimisation analysis. Each type of evaluation measures outcomes in a different way and it is these outcomes that distinguish one method from another. Cost-effectiveness analysis and cost-utility analysis are the methods most commonly used in the evaluation of healthcare interventions.

Cost-effectiveness studies use specific end-points measured in natural units (e.g. quit rate) to define outcomes. The results of cost-effectiveness analyses are expressed as a ratio of the costs divided by the health outcomes, for example, cost per quitter. The cost-utility analysis is a form of cost-effectiveness evaluation in which the evaluation of the consequences of a programme are adjusted by health state preference scores or utility weights. A commonly used measure of utility is the quality-adjusted life year or QALY.

**Quality Adjusted Life Year (QALY)**

The QALY is based on a composite of life years saved/gained and the quality of life of those remaining years. Both the quality and quantity of the years of life a person is expected to have are assessed. QALYs are calculated by multiplying the value of preference for being in a certain state (ranging from 0 = death to 1 = perfect health) by the length of time of being in that state. For example, 10 years in a health state with a utility value of 0.5 would result in 5 QALYs – equivalent to 5 years in perfect health.

**Incremental Cost-effectiveness Ratio (ICER)**

An ICER is the ratio of the difference in costs between an intervention and its alternative (usually doing nothing or the next most effective alternative to the intervention) to the difference in effects of the intervention and its alternative. For example, an ICER may be expressed as a cost per QALY, that is the cost of generating an ‘additional’ QALY by using a particular intervention instead of the alternative.

**Discounting**

Any programme or intervention that lasts longer than 12 months requires discounting based on the assumption that the further away in time that the outcomes occur the less they are valued by society (known as a positive time preference). A discount rate is therefore used in economic evaluations to adjust future costs and outcomes to their present value. The discount rate is set by the Treasury and is currently 3.5% for both costs and outcomes.

The costs associated with intervening in different types of behaviour, the success of various behaviour change interventions and how this success is measured will differ and so it is not possible to provide a single conclusive statement about the cost-effectiveness of all brief interventions. However, the following review synthesises the available evidence for each type of behaviour.
Alcohol intervention cost-effectiveness

- Consumption of alcohol has risen by 19% over the last three decades and over a quarter of England’s adult population (10.5 million) are drinking at hazardous levels.\(^7\)
- The cost of alcohol-related harm to England and Wales is in the region of £20 billion to £55 billion. Limiting these figures to those related to health, absenteeism and crime generates an annual cost of £12.6 billion to England annually.\(^8\) With the increases seen in alcohol-related hospital admissions in the past seven years this figure is likely to be a considerable underestimate.\(^9\)
- Alcohol-related conditions cost the NHS approximately £2.7 billion in 2006/07\(^7\) and the majority of this cost (£2,108.4 million) is related to hospital admissions.\(^7\)
- The UK Alcohol Treatment Trial (UKATT)\(^1\) found that the alcohol therapies (namely social behaviour and motivational enhancement therapies) saved about five times what they cost to public sector resources including health and social care and criminal justice.\(^8\) This has frequently been summarised as every £1 spent on evidence based alcohol treatment, results in a net saving of £5 to the public sector.\(^8\)

According to NICE, the cost of delivering ten minutes brief advice for alcohol ranges from £11.50 for a practice nurse to £23.50 for a GP\(^8\). Around 98% of England’s population are registered with a general practice, so general practice can make a significant contribution to reducing alcohol-related harm. Studies have indicated that brief advice with a GP or practice nurse leads to one in eight people reducing their drinking to sensible levels.\(^7\)

Evidence suggests that opportunistically identifying and offering brief advice (at general practice attendance) to adults drinking a harmful amount of alcohol will result in savings to the health service (alcohol-related harm will be reduced). There is, however, little evidence to determine the timescales over which these savings will be achieved or how long these changes will be sustained.

**Figure 1: Estimated costs of providing brief advice on alcohol to individuals identified opportunistically in general practice.**

![Figure 1: Estimated costs of providing brief advice on alcohol to individuals identified opportunistically in general practice.](image)

Source: NWPHO from NICE 2010.

\(\text{a}\) The trial recruited 742 clients of ages 16 and above with alcohol problems from all social groups from seven UK sites.
Figure 1 estimates the cost of providing brief advice to the population identified by screening at next attendance\textsuperscript{iii} for both a practice nurse and a GP. The costs for year one are £35.4 million for brief advice by a practice nurse and £73.5 million for a GP decreasing to £7.9 million and £16.4 million respectively in year three.

The Alcohol Ready Reckoner\textsuperscript{84} calculates the cost and benefits of implementing four high impact interventions. These include four intervention types in different settings (for different groups): Alcohol Health Workers in A&E and hospital clinics with non-dependent drinkers; Alcohol Health Workers in acute hospital with dependent drinkers; increasing proportions of dependent drinkers treated with brief counselling packages (e.g. motivational or social network therapy, the United Kingdom Alcohol Treatment Trial [UKATT]); and Identification and Brief Advice - Screening for problem drinkers in general practice followed by brief advice (TrEAT). Table 3 presents the average benefits of implementing a screening and advice programme for problem drinkers in a general practice setting across the North West and is based on 1,000 patients being screened with 85\% of those patients receiving brief advice. The benefits are calculated in terms of the numbers of alcohol-related A&E and hospital admissions averted as a result of the intervention\textsuperscript{iv},\textsuperscript{85} and indicate that implementing screening and brief advice in general practices across the North West could save an average of £12,833 or £12.83 per patient.

Table 3: Estimated average savings of implementing screening and brief advice for alcohol in a general practice setting for the North West.

<table>
<thead>
<tr>
<th>Population</th>
<th>Number screened</th>
<th>Attendances adverted</th>
<th>Extra cost</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A&amp;E</td>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td>Cheshire and Merseyside</td>
<td>1,940,233</td>
<td>1000</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Cumbria and Lancashire</td>
<td>1,814,172</td>
<td>1000</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>1,899,924</td>
<td>1000</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>North West</td>
<td>5,654,329</td>
<td>1000</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: NWPfHO from Alcohol Learning Centre, April 2010

A modelling report by the School of Health and Related Research at the University of Sheffield examined the cost-effectiveness of screening and brief interventions in three contexts: for the intervention to take place at the next GP consultation, the next registration with a new GP, or the next A&E attendance. The brief interventions ranged between 5 and 25 minutes and the incremental cost per QALY ranged from £1,697 to £23,077. Within each context, screening and brief intervention were found to be cost-effective and in some scenarios, screening and brief interventions were cost saving (or ‘dominant’) compared against a ‘do nothing’ option (i.e. the intervention provided both additional health benefits and an overall reduced health service cost). From this economic analysis, NICE conclude that NHS and personal social service savings of up to £124.3 million are realisable over a 30 year time horizon.\textsuperscript{83}

A report commissioned by the Scottish Advisory Committee on Alcohol Misuse\textsuperscript{87} presented estimates of the cost-effectiveness of alcohol brief interventions in the UK based on the available evidence. It was calculated that the total intervention costs per patient receiving a brief intervention were £86.74 in 1999/00 prices and that the life years saved were 0.033. This produced a cost saving for one life year of £2,628; the estimated healthcare savings from A&E attendances and hospitalised days avoided was £108.55, therefore producing an estimated cost saving of £21.81 per patient (£66.31 per patient if vehicle crimes are included). It must, however, be noted that these savings represent the value of resources released and this is unlikely to generate financial savings of the same magnitude.\textsuperscript{88}

\textsuperscript{iii} Assuming that 62\% of those who are opportunistically identified for brief advice at GP or practice nurse appointments will choose to receive it.

\textsuperscript{iv} Based on the results of a cost-benefit analysis of the US Project TrEAT (Trial for Early Alcohol Treatment).
Summary
Screening and brief intervention for alcohol within primary care and A&E has been shown to be cost-effective and in some scenarios, cost saving. Economic analysis by the University of Sheffield found that several examples of screening and brief advice in GP and A&E settings produce estimated cost savings. The analysis suggested that health and social service savings of £124.3 million may be realised over a 30 year time horizon.

Smoking intervention cost-effectiveness

- The direct cost of smoking to the NHS annually is, according to 2005/06 estimates, around £5.2 billion.⁸⁹
- The North West has an adult smoking rate significantly higher than the England average and 25 out of 43 local authorities have a higher estimated prevalence.⁹⁰

According to NICE the cost of delivering a ten minute opportunistic brief advice session for smoking is £20.82 for a GP and £3.86 (after inflation) for a practice nurse.⁴⁷ The cost of fully implementing the brief advice element of brief interventions for smoking cessation and referral (NICE Public Health Intervention 1) to the North West is presented in Table 4.

Table 4: Cost of brief advice for smoking cessation in the North West

<table>
<thead>
<tr>
<th>Population</th>
<th>Number of smokers</th>
<th>Estimated number of smokers setting quit dates</th>
<th>Average cost per quitter of providing advice</th>
<th>Increased cost to provide quit advice</th>
<th>Increased number settling a quit date</th>
<th>Estimated increase in quitters at 4 weeks</th>
<th>Estimated smokers quit at 52 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire and Merseyside</td>
<td>466,411</td>
<td>25,164</td>
<td>£22.89</td>
<td>£28,796</td>
<td>1,258</td>
<td>708</td>
<td>177</td>
</tr>
<tr>
<td>Cumbria and Lancashire</td>
<td>373,675</td>
<td>20,316</td>
<td>£22.89</td>
<td>£23,256</td>
<td>1,016</td>
<td>572</td>
<td>143</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>513,530</td>
<td>27,118</td>
<td>£22.89</td>
<td>£31,039</td>
<td>1,356</td>
<td>763</td>
<td>191</td>
</tr>
<tr>
<td>North West</td>
<td>1,353,616</td>
<td>72,595</td>
<td>£22.89</td>
<td>£406,560</td>
<td>3,630</td>
<td>2,043</td>
<td>511</td>
</tr>
<tr>
<td>England</td>
<td>9,924,355</td>
<td>529,567</td>
<td>£22.89</td>
<td>£2,965,536</td>
<td>26,478</td>
<td>14,906</td>
<td>3,727</td>
</tr>
</tbody>
</table>

Source: NICE 2006

Individuals who quit smoking will gain both quantity and quality of life. The number of years of life gained by quitting smoking will vary depending on the age at which an individual quits. The Centre for Health Economics at the University of York⁹³ calculated the life years gained from quitting smoking as 10 years, 9 years, 6 years and 3 years at age 30, 40, 50 and 60 respectively. So for example, between the ages of 50 and 59 the authors calculated that an ex smoker will gain a quality of life increment derived from the difference in the quality of life of a smoker and ex smoker and an additional 6 years based on the average quality of life for an ex smoker across a lifetime. In addition, a discount rate of 3.5% was applied to each estimate to give a discounted QALY at each age; this is in accordance with NICE guidance.⁹² Calculations were based on the assumption that the gains are distributed evenly across a patient’s life.

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⁷ Based on ONS national figures.
⁸ Based on the cost of ten minutes with a General Practitioner (Centre for Health Economics, 2006).
⁹ Based on a 75% relapse rate from 4-52 weeks.
The incremental cost per QALY of a five minute opportunistic intervention with a GP ranged from £577 to £1,677 for females and £633 to £1,510 for males in 2004/05 prices. The NICE Guide to the Methods of Technology Appraisal$^{2}$ indicates a threshold value for ICERs of £20,000 per QALY gained and interventions with ICERs falling below this threshold are generally judged an effective use of NHS resources. According to the study, brief advice remains cost-effective providing that costs remain below £132 for males and £119 for females (based on the highest age group in the analysis). This is the equivalent of 66 minutes advice for males and 60 minutes of advice for females, a threshold well above the five minutes opportunistic brief advice considered in the analysis.

The Centre for Health Economics Cost-effectiveness of the English Smoking Treatment Services report$^{3}$ drew the following conclusions about the cost-effectiveness of brief interventions for smoking cessation:

- Brief interventions in smoking in all settings and age groups can generate QALY gains at a low cost.
- The cost per QALY increases with patient age but brief interventions delivered to a 60 year old cohort are still within NICE thresholds for cost-effectiveness.
- Even the most pessimistic of scenarios (in terms of background quit rates, length of intervention, age and level of dependency) were not in excess of the NICE £20,000 threshold. In the age group demonstrating the lowest cost-effectiveness outcomes, it was estimated that for brief advice alone, cost-effectiveness would not reach the threshold value until the time spent exceeded one hour.

As the number of smokers is reduced (smokers become ex smokers and thus experience less smoking related morbidity) the average healthcare costs will fall. In an evaluation of the national smoking cessation programme Godfrey et al$^{3}$ estimated a mean cost saving of £448 per ex smoker (inflated to 2004/05 prices) when adjusting for a 3.5% discount rate. Table 5 shows how the cost per QALY (compared to Figure 2) will be reduced as some of the savings in healthcare costs realised from smokers quitting are offset against the cost of providing the intervention.
Table 5: Healthcare savings from implementing brief advice for smoking when taking into account the cost of providing the intervention

<table>
<thead>
<tr>
<th>Brief opportunistic advice from a GP</th>
<th>Incremental cost per QALY over and above control(^{xvi})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Age 30</td>
<td>£540</td>
</tr>
<tr>
<td>Age 40</td>
<td>£538</td>
</tr>
<tr>
<td>Age 50</td>
<td>£705</td>
</tr>
<tr>
<td>Age 60</td>
<td>£1284</td>
</tr>
</tbody>
</table>

Source: NICE 2006

Summary

Brief interventions for smoking in all settings and age groups can generate QALY gains at a low cost. A brief opportunistic intervention delivered by a GP remains cost-effective as long as the price is below £132 for males and £119 for females (in 2004/05 prices). The longest practical length for opportunistic advice delivered by a GP in a UK setting is around five to ten minutes. The NICE report demonstrated that for this kind of brief intervention, cost-effectiveness would not reach the NICE threshold until the time spent exceeded one hour.

Physical activity and healthy weight intervention cost-effectiveness

- In 2004 the NHS estimated that physical inactivity was costing Britain £8.2 billion annually, not including the contribution of physical activity to obesity which costs the economy an estimated £2.5 billion annually.\(^{75}\)
- In England, 22% of men and 24% of women were obese in 2009.\(^{46}\)
- In 2003, the Department for Culture, Media and Sport and the Cabinet Office Strategy Unit estimated that a 10% increase in adult activity would benefit England by around £500 million per year, with a direct health saving of £85 million.\(^{95}\)

NICE estimates that a potential 20 million brief interventions on physical activity could be delivered by GPs each year. This is based on the inactive population (44% at each age band) being multiplied by the number of consultations where brief advice is appropriate (25% of consultations annually).\(^{95}\) Based on the NICE costing template, 488,103 brief interventions on physical activity could be delivered at each year by GPs in the North West, which is equivalent to approximately 11% of all GP consultations.\(^{96}\)

Using existing appointments and contact time can minimise the cost impact of delivering brief interventions. The cost of follow up is estimated to be around £4.26 for a 15 minute consultation with a practice nurse or health improvement specialist. A brief intervention undertaken by a health trainer\(^{15}\) would cost £3.02. The cost of interventions vary according to the professionals delivering the intervention, for example, a 15 minute intervention with a dietician, physiotherapist and clinical psychologist would cost £6.75, £7 and £8 respectively.

The cost of implementing brief interventions in general practice across the North West is estimated by NICE in Table 6. The number of brief interventions provided is based on the assumption that 25% of GPs will opportunistically provide brief interventions at consultations.

\(^{xvi}\) Assuming a background quit rate of 1% - that is to say that 1% of smokers would still quit smoking without any intervention.
Table 6: Estimated cost of brief interventions to increase physical activity for the North West

<table>
<thead>
<tr>
<th></th>
<th>Total number of GP consultations (2006)</th>
<th>% of all consultations where brief interventions are appropriate</th>
<th>Estimate of brief interventions provided*</th>
<th>Current total cost of brief interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheshire and Merseyside</td>
<td>4,421,224</td>
<td>11.04%</td>
<td>122,008</td>
<td>£267,198</td>
</tr>
<tr>
<td>Cumbria and Lancashire</td>
<td>8,352,245</td>
<td>10.38%</td>
<td>226,131</td>
<td>£495,229</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>6,156,157</td>
<td>10.83%</td>
<td>166,744</td>
<td>£365,169</td>
</tr>
<tr>
<td>North West</td>
<td>18,929,636</td>
<td>10.88%</td>
<td>514,882</td>
<td>£1,127,592</td>
</tr>
<tr>
<td>UK</td>
<td>185,041,028</td>
<td>10.89%</td>
<td>5,038,393</td>
<td>£11,034,083</td>
</tr>
</tbody>
</table>

Source: NWP HO taken from NICE 2006

It is useful to consider the cost of delivering a brief intervention for physical activity in comparison to the annual cost per patient of delivering treatment for three major conditions associated with obesity; namely diabetes, coronary heart disease and colon cancer. NICE has estimated that half an hour of practice nurse contact time once a week for 12 months would cost £728, whilst a year’s treatment for diabetes, coronary heart disease and colon cancer would cost £653, £1,637 and £7,320 respectively. These figures help to give an indication of the magnitude of savings which could be achieved through the delivery of cost-effective brief interventions to promote physical activity.

Brief interventions to promote physical activity delivered in primary care have been found to be cost-effective. Brief interventions can result in QALY gains and net cost savings to the health service (when compared to the alternative of no intervention being delivered). Evidence suggests that brief interventions can result in incremental costs ranging from £20 to £440 per QALY gained.

Table 7 compares the costs and QALYs for the prevention strategies delivered over a full year; the base case for each strategy assumed that weight was maintained over one year and that the efficacy of all interventions was 75%. This was compared with a ‘do nothing’ strategy, meaning that no active interventions were added but that normal care continued.

Table 7: Cost and QALY gains for brief interventions to tackle obesity (2005 prices)

<table>
<thead>
<tr>
<th>Intervention strategy</th>
<th>Costs</th>
<th>QALY</th>
<th>Costs</th>
<th>QALY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work place counselling</td>
<td>£2,072</td>
<td>28.24</td>
<td>£1,810</td>
<td>28.15</td>
</tr>
<tr>
<td>Counselling from primary care staff</td>
<td>£2,148</td>
<td>28.12</td>
<td>£1,842</td>
<td>27.99</td>
</tr>
<tr>
<td>Family-based intervention</td>
<td>£2,233</td>
<td>28.38</td>
<td>£1,807</td>
<td>28.15</td>
</tr>
</tbody>
</table>

Source: NICE 2006

As would be expected, the interventions cost more than doing nothing but all of the interventions strategies presented resulted in more QALYs gained. Table 8 provides the incremental QALY gains and ICERs for all of the interventions listed above. The results show that the approaches produce a relatively low incremental cost per QALY (within the accepted range of £20,000 per QALY designated by NICE) but it must be noted that

* Based on 25% of GPs undertaking brief interventions.
incremental costs and QALY gains were low. Further analysis of the prevention strategies according to different scenarios suggested that the interventions were cost-effective under a wide range of assumptions, but that cost-effectiveness was dependent on the duration of intervention effect as well as the extent of any weight loss.

**Table 8: Incremental costs of implementing interventions to tackle obesity**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Incremental cost</th>
<th>Incremental QALY</th>
<th>ICER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace counselling</td>
<td>£261</td>
<td>0.087</td>
<td>£3,018 per QALY</td>
</tr>
<tr>
<td>Counselling by primary care staff</td>
<td>£306</td>
<td>0.132</td>
<td>£2,313 per QALY</td>
</tr>
<tr>
<td>Family based interventions</td>
<td>£425</td>
<td>0.23</td>
<td>£1,826 per QALY</td>
</tr>
</tbody>
</table>

Source: NICE, 2006

**Summary**

Across the North West, a potential 488,103 brief interventions for physical activity could be delivered by GPs annually, at a cost of around £11.7 million. Brief interventions delivered in primary care to promote physical activity have been shown to produce incremental QALY gains at a cost per QALY ranging from £20 to £440; well below the recommended NICE threshold for cost-effectiveness. Brief interventions delivered in primary care to tackle obesity have also been shown to be cost-effective, but are associated with relatively low QALY gains.

**Sexual health intervention cost-effectiveness**

- Each year in England 818,473 diagnoses are made for sexually transmitted infections; 12.3% of these are made in a general practice setting, 0.2% under the National Chlamydia Screening Programme and 87.5% through genitourinary medicine (GUM).
- The annual cost of teenage pregnancy to the NHS each year is around £63 million.

The cost of providing a brief intervention to prevent the transmission of sexually transmitted infections in accordance with 2007 NICE Guidance on one-to-one sexual health interventions is presented in Table 9. The cost of delivering brief interventions by practice nurses, sexual health advisors and community nurses are all considerably less than the cost of an intervention delivered by a GP.

**Table 9: Average cost of a ten minute sexual health risk assessment**

<table>
<thead>
<tr>
<th>Professional group</th>
<th>Unit cost</th>
<th>Cost of 10 minute risk assessment</th>
<th>Cost of 20 minute one-to-one sexual advice session</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Practitioner (GP)</td>
<td>£21.00 per 10 minute consultation</td>
<td>£21.00</td>
<td>£42.00</td>
</tr>
<tr>
<td>Practice Nurse</td>
<td>£24.31 per hour (midpoint of three pay bands)</td>
<td>£4.05</td>
<td>£8.10</td>
</tr>
<tr>
<td>Sexual Health Adviser</td>
<td>£31.74 (midpoint of pay band)</td>
<td>£5.29</td>
<td>£10.58</td>
</tr>
<tr>
<td>Community Nurse</td>
<td>£31.74 (midpoint of pay band)</td>
<td>£5.29</td>
<td>£10.58</td>
</tr>
</tbody>
</table>

Source: NICE, 2007
The results of cost-effective analyses of selected one-to-one interventions to tackle STIs and teenage conceptions for interventions ranging from 18 to 240 minutes is summarised in Table 10. The incremental cost per QALY gained ranged from £3,200 to £96,000.100

Table 10: Cost-effectiveness of one-to-one interventions to tackle STIs.

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Type of staff</th>
<th>Time (hrs)</th>
<th>For 1,000 people receiving the intervention</th>
<th>Incremental cost per QALY gained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamb (1998)</td>
<td>Brief counselling</td>
<td>Practice nurse</td>
<td>0.7</td>
<td>26</td>
<td>£12,080</td>
</tr>
<tr>
<td>Maher (2003)</td>
<td>Intensive counselling</td>
<td>Practice nurse</td>
<td>2</td>
<td>40</td>
<td>£24,000</td>
</tr>
<tr>
<td>Boyer (1997)</td>
<td>Behavioural skills counselling</td>
<td>Practice nurse</td>
<td>4</td>
<td>30</td>
<td>£96,000</td>
</tr>
<tr>
<td>Kalichman (2005)</td>
<td>Information and behaviour skills (women)</td>
<td>Practice nurse</td>
<td>1.5</td>
<td>70</td>
<td>£10,286</td>
</tr>
<tr>
<td>Kalichman (2005)</td>
<td>Information, motivation and behaviour skills (men)</td>
<td>Practice nurse</td>
<td>1.5</td>
<td>40</td>
<td>£18,000</td>
</tr>
<tr>
<td>Bolu (2004)</td>
<td>Brief counselling</td>
<td>Practice nurse</td>
<td>0.7</td>
<td>40</td>
<td>£39,600</td>
</tr>
<tr>
<td>James (1998)</td>
<td>Tailored skill session</td>
<td>Practice nurse</td>
<td>0.3</td>
<td>50</td>
<td>£3,200</td>
</tr>
</tbody>
</table>

Source: NWPHO from NERA 2006

Overall, one-to-one interventions have been found to be cost-effective; with most brief interventions demonstrating cost-effectiveness compared with usual treatment using £30,000 per QALY as the threshold for cost-effectiveness. However, it must be noted that there is a lack of evidence to demonstrate the cost-effectiveness of brief interventions when compared to other kinds of interventions. Cost-effectiveness analyses have shown that brief interventions which involve giving information or developing motivation and behavioural skills present the greatest benefits for the lowest cost whilst behavioural skills and enhanced counselling appear to be the least cost-effective interventions.63

Summary

One-to-one interventions to tackle STIs and teenage conceptions have in general been found to be cost-effective with interventions ranging from 18 to 240 minutes producing an incremental cost per QALY ranging from £3,200 to £96,000. Interventions which involve information giving and developing motivational and behavioural skills have been shown to be the most cost-effective.

Workplace based interventions

Reducing long-term absence in the workplace

The cost of implementing interventions will vary significantly depending on the number of employees and the proportion of long-term sickness absence within each organisation. For example, in an organisation with 3,000 employees there will be around 35 employees on long-term sickness absence. In an organisation of this size, NICE calculate that implementing an intervention involving a combination of physical activity, education and a
workplace visit could avoid an estimated 752 sick days (assuming that 100% of those on long-term sickness absence would benefit from the intervention) for an estimated cost of £29,015 to the organisation. In accordance with the national gross weekly wage, the potential saving associated with this reduction in sick days is £73,564 indicating a net saving of £44,531 to the organisation.

The probability of returning to work after six months is 64.8%, so it is reasonable to assume that out of 100 people on long-term sickness absence, approximately 65 will return to work after six months whilst someone who has been off work for more than six months has an 80% chance of being off work for five years. Out of 100 employees receiving an intervention, 73 will return to work within the first six months, eight more employees returning compared to normal care.

The NICE public health guidance on Management of Long-term Sickness and Incapacity for Work provides costing information for three types of intervention: physical activity and education (10 sessions of physiotherapy or physical activity and 10 sessions of Cognitive Behaviour Therapy (CBT)), workplace intervention (usual care, workplace assessment and work modifications and communication between occupational physician and GP to reach a consensus on return to work) and physical activity and education along with a workplace visit (sessions as before plus half a day of line manager’s time). A breakdown of the cost of these interventions is presented in Table 11.

Table 11: Cost of workplace interventions to reduce long-term sickness.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Workplace intervention</th>
<th>Physiotherapy / physical activity</th>
<th>Cognitive behaviour therapy</th>
<th>Workplace visit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity and education</td>
<td>-</td>
<td>£163</td>
<td>£620</td>
<td>-</td>
<td>£783</td>
</tr>
<tr>
<td>Workplace intervention</td>
<td>£527</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>£527</td>
</tr>
<tr>
<td>Physical activity and education and workplace visit</td>
<td>-</td>
<td>£163</td>
<td>£620</td>
<td>£46</td>
<td>£829</td>
</tr>
</tbody>
</table>

Source: NICE, 2009

Promoting mental wellbeing in the workplace

The cost of mental ill health to employers in the UK is estimated at £28.3 billion at 2009 pay levels. Evidence suggests that investment in healthy workplaces and practices along with the health and wellbeing of employees increases productivity and is cost-effective for business and wider society. £9.2 billion of this cost is attributable to sickness absence, £16.5 billion due to reduced productivity at work and £2.6 billion for turnover (replacing staff who leave their job due to mental ill health).

It is estimated that implementing NICE Guidance Promoting Mental Wellbeing Through Productive and Healthy Working Conditions (including prevention and early identification) will enable employers to save around £8 billion per year. The estimated total annual cost of mental ill health to an organisation with 3,000 employees is estimated at £2,690,049 with £879,320 of this cost attributable to mental ill health related absence and £1,577,979 attributable to presenteeism related to mental ill health. The remaining £232,750 is due to staff turnover (assuming that the organisation will have an annual staff turnover of 15.7% due to mental ill health). Implementing the improving mental health in the workplace guidance could produce annual savings of £807,015.

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* Based on employees having the UK average of 7.4 days sickness absence per year, with 40.5% of these days attributable to mental ill health. (Figures taken from the CIPD annual survey. 2009). The cost attributable to each day is calculated at the gross national daily wage of £97.80 (ONS, 2009).

* Presenteeism refers to being in work but not fully productive due to either a health condition or personal issue.

* Based on a ratio of 1.5 days of presenteeism to each day of absence (Sainsbury Centre for Mental Health, 2007).

* Assuming that a work based intervention strategy will result in a 30% reduction in mental-health related sickness absence (Sainsbury Centre for Mental Health, 2007).
Promoting physical activity in the workplace

Around 65% of men and 76% of women are not physically active enough to meet national recommendations (at least 30 minutes moderate exercise five times a week) and the cost of this physical inactivity in England has been estimated at £8.2 billion a year. Since people who are employed are estimated to spend 60% of their waking hours at work, it is an ideal place to encourage them to be physically active.\textsuperscript{107}

Physical activity at work programmes have been found to reduce absenteeism by up to 20%\textsuperscript{108} and well-designed programmes can reduce staff turnover and increase employee satisfaction by between 10 and 25%. In an organisation of 3,000 (based on median gross annual wage\textsuperscript{109}), NICE estimate that a physical activity at work intervention programme can produce cost benefits of £424,950 annually.\textsuperscript{109}

There is a lack of research examining the cost-effectiveness of workplace based interventions in terms of their impact on quality of life. However, the York Health Economics Consortium produced an accompanying report\textsuperscript{113} to the NICE guidance on \textit{Promoting Physical Activity in the Workplace} which presented a model based on several robust studies. Table 12 presents the cost per employee and the QALY gains for three studies of workplace based physical activity interventions.\textsuperscript{xiv}

\textbf{Table 12: Cost and QALY gains of implementing physical activity interventions in the workplace in a cohort of 1,000 people}

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Cost per employee in 2007 prices</th>
<th>Total QALY gains</th>
<th>QALY gains per employee</th>
<th>ICER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity counselling</td>
<td>£57.00</td>
<td>115.04</td>
<td>0.12</td>
<td>£495 per QALY</td>
</tr>
<tr>
<td>Physical activity walking programme</td>
<td>£56.00</td>
<td>81.59</td>
<td>0.08</td>
<td>£686 per QALY</td>
</tr>
<tr>
<td>Physical activity counselling programme</td>
<td>£136.19</td>
<td>110.35</td>
<td>0.11</td>
<td>£1,234 per QALY</td>
</tr>
</tbody>
</table>

Source YHEC 2008

The estimated associated healthcare cost savings to the NHS of implementing these interventions were calculated based on assumptions relating to the age at which the health condition developed and the likely associated life expectancy. These factors combined with the average annual cost of treating an individual with coronary heart disease (CHD), stroke or diabetes are presented in Table 13 (figures in the table are indicative of likely NHS cost savings).\textsuperscript{113}

\textsuperscript{xiv}Based on a cohort of 1,000 people aged between 40-60 years using information from HSE.
Table 13: Estimated NHS cost savings from implementing workplace based interventions to promote physical activity

<table>
<thead>
<tr>
<th>Study</th>
<th>CHD</th>
<th>Stroke</th>
<th>Type 2 diabetes</th>
<th>Total lifetime NHS healthcare costs saved per 1,000 sedentary employees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases averted</td>
<td>Life-time health cost savings</td>
<td>Cases averted</td>
<td>Life-time health cost savings</td>
</tr>
<tr>
<td>Purath et al (2004)</td>
<td>15.86</td>
<td>£384,944</td>
<td>0.95</td>
<td>£12,620</td>
</tr>
<tr>
<td>Chyou et al (2006)</td>
<td>7.83</td>
<td>£189,948</td>
<td>3.02</td>
<td>£126,072</td>
</tr>
</tbody>
</table>

Source: YHEC 2008.

As Table 13 shows, the estimated total cost savings to the NHS from averting cases of CHD, stroke and type 2 diabetes through implementing a workplace physical activity programme for a cohort of 1,000 sedentary employees ranged from £367,547 to £541,944. The resulting net cost savings to the NHS from the interventions ranged from £292,388 to £484,944 and are presented in Table 14.

Table 14: Net cost savings to the NHS from implementing workplace based interventions to promote physical activity

<table>
<thead>
<tr>
<th>Study</th>
<th>Total lifetime cost saved</th>
<th>Cost of intervention</th>
<th>Net NHS cost saving (discounted at 3.5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purath et al (2004)</td>
<td>£541,944</td>
<td>£57,000</td>
<td>£484,944</td>
</tr>
<tr>
<td>Chyou et al (2006)</td>
<td>£367,547</td>
<td>£56,000</td>
<td>£311,547</td>
</tr>
</tbody>
</table>

Source: YHEC 2008.

Summary

Implementing NICE guidance on reducing long-term sickness absence in an organisation of 3,000 employees could avoid 752 sick days for an estimated cost of £29,015 to the organisation. The estimated total annual cost of mental ill health to an organisation of the same size is estimated at £2,690,049 and implementing the improving mental health in the workplace guidance could provide annual savings of £807,015. Around three-fifths of a working person’s day in the North West is spent at work making it a setting with enormous potential for improving the health of the working population.

Physical activity at work programmes can reduce absenteeism by up to 20% and improve employee satisfaction by between 10 and 25%. In an organisation of 3,000 people a physical activity programme can produce benefits of £424,950 annually. Over the lifetime of a cohort of 1,000 sedentary individuals, physical activity interventions have been estimated to produce net cost savings to the NHS of between £292,388 and £484,944 by averting cases of CHD, stroke and type 2 diabetes.
Summary

This section has synthesised the available evidence for the cost-effectiveness of brief interventions for a range of behaviours and in a range of settings. Overall, although the strength of the evidence varies across the major lifestyle areas, there is clear evidence to suggest that brief interventions are cost-effective and in some settings and populations, cost saving. Certainly, the evidence supports the use of brief interventions for smoking cessation and alcohol use in primary care as an appropriate use of NHS resources, with the cost-effectiveness of these interventions falling well below the NICE threshold of £20,000 per QALY.

The evidence is weaker in relation to the cost-effectiveness of brief interventions in the workplace and those targeting sexual health, physical activity and healthy weight. However, the evidence that is available indicates these approaches are also likely to be cost-effective.

5. CONCLUSIONS AND RECOMMENDATIONS

This synthesis report brings together evidence on the cost-effectiveness of behaviour change interventions for a variety of lifestyle behaviours. This report is being written at a time when public health policy is changing significantly. However, the commitment to strengthening the QIPP framework in the Liberating the NHS White Paper along with the importance placed on innovative behaviour change practice in the recently published Public Health White Paper, emphasise the importance of preventive services for the improvement of health and wellbeing.

In general, brief interventions can be delivered at relatively low cost and successful interventions will result in health gains. Brief interventions have been shown to achieve quality adjusted life years (QALY) gains whilst remaining well below the recommended NICE cost-effectiveness threshold. However, the cost-effectiveness of various interventions among different population groups and in different settings is debatable; and the cost of interventions will vary (for example, opportunistic delivery will be less costly than screening). The difference in cost-effectiveness studies in terms of settings, populations and time periods present difficulties in synthesising the results.

Only a small part of the benefits from behaviour change will be seen by the health sector. For example, brief interventions for alcohol use have been shown to produce cost savings to public sector services beyond the NHS including social care and criminal justice; a UKATT study estimated that for every £1 spent on evidence based alcohol treatment there is a resulting £5 saving to the public sector. It is therefore important to consider engagement with partners in local authorities, criminal justice, central government and the private sector; and the role these organisations can play in commissioning and delivering behaviour change interventions across the North West.

Table 15 provides a summary of the evidence for the four major lifestyle topics considered in this report. Brief interventions in primary care for high risk drinkers and smoking cessation demonstrate the clearest effectiveness rating with brief interventions for high risk drinkers demonstrating good evidence of public sector cost savings and brief interventions for smokers demonstrating moderate evidence of quality of life gained.
Table 15: Summary of the cost-effectiveness evidence for brief interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Effectiveness rating</th>
<th>Cost-effectiveness rating</th>
<th>Public sector costs saved</th>
<th>Quality of life gained</th>
<th>Incremental cost per QALY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventing harmful alcohol use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief interventions in primary care for high risk drinkers</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td>Dominant - £13,500</td>
</tr>
<tr>
<td>Brief interventions in A&amp;E</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>£6,500 – £23,100</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief interventions in primary care</td>
<td>***</td>
<td></td>
<td></td>
<td>*</td>
<td>£500 – £1,400</td>
</tr>
<tr>
<td>Reducing STIs and teenage conceptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One on one interventions in primary care</td>
<td>**</td>
<td></td>
<td></td>
<td>*</td>
<td>£3,200 – £96,000</td>
</tr>
<tr>
<td>Promoting physical activity and healthy weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counselling by primary care staff</td>
<td>**</td>
<td></td>
<td></td>
<td>*</td>
<td>£2,300</td>
</tr>
</tbody>
</table>

Source: NWPHO/CPH based on Health England 2009

Key

*** Good evidence for brief interventions in this setting
** Moderate evidence for brief intervention in this setting
* Limited evidence for brief interventions in this setting

Recommendations

- **Investment in behaviour change training for General Practitioners and Practice Nurses can create benefits at a low cost.**
  
  On average a five to ten minute brief intervention costs £22.02 with a GP and £6.33 with a Practice Nurse. Training for practice nurses and other health professionals in delivering brief interventions both opportunistically and formally would therefore be a worthwhile use of financial resources providing that there is evidence to suggest they are equally as effective as behaviour change interventions delivered by GPs. In addition, there would need to be evidence that administration and other costs are not increased.

- **Brief interventions to encourage smoking cessation are effective in improving the quality of life of the North West population.**
  
  The evidence supporting the cost-effectiveness of brief interventions for smoking cessation is clear, with brief interventions within a range of settings and age groups shown to generate QALY gains at a low cost.
• **Investment in brief interventions can make a clear contribution to the cost effective reduction of alcohol-related harm in the North West.**

Screening and brief intervention for alcohol within primary care and A&E has been shown to be cost-effective and in some scenarios, cost saving. Economic analysis by the University of Sheffield found that several examples of screening and brief advice in GP and A&E settings produce estimated cost savings.

• **Investment in brief interventions in primary care is a cost-effective way of tackling obesity in the North West.**

A potential 488,103 brief interventions for physical activity could be delivered by GPs in the North West annually, at a cost of around £11.7 million. Brief interventions delivered in primary care to tackle obesity have been shown to be cost-effective and brief interventions delivered in primary care to promote physical activity have been shown to produce incremental QALY gains at a cost per QALY ranging from £20 to £440.

• **Investment in interventions delivered in the workplace has an enormous potential for improving the health of the working population.**

Around three-fifths of working people’s day in the North West is spent at work making it a setting with enormous potential for improving the health of the working population. For example, implementing physical activity at work programmes can reduce absenteeism by up to 20% and improve employee satisfaction by between 10 and 25%. Over the lifetime of a cohort of 1,000 sedentary individuals, physical activity interventions have been estimated to produce net cost savings to the NHS of between £292,388 and £484,944 by averting cases of CHD, stroke and type 2 diabetes.

Further research evidence is needed about the cost-effectiveness of brief interventions, particularly those delivered outside primary care. This will be important given the proposed changes within public health services across England. Future developments are likely to include a greater role for local authorities in public health and a focus upon evidence-based practice to help ensure that resources are used effectively and linked to clear health outcomes. At a local level in the North West, there is a need for improved collection and sharing of data about the cost and cost-effectiveness of locally led brief interventions.

The evidence base about the effectiveness and cost-effectiveness of training for behaviour change interventions is also limited and should be developed further. Greater research is needed showing the potential value of using available technologies, such as the telephone or internet, to deliver brief interventions and promote positive health behaviours or choices in the future.
6. REFERENCES


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Abbreviations

- BMI: Body Mass Index
- CBT: Cognitive Behaviour Therapy
- CHD: Coronary Heart Disease
- CIPD: Chartered Institute for Personnel and Development
- DH: Department of Health
- DSO: Departmental Strategic Objective
- GP: General Practitioner
- IBA: Identification and Brief Advice
- ICER: Incremental Cost-Effectiveness Ratio
- NHS: National Health Service
- NI: National Indicator
- NICE: National Institute for Clinical Excellence
- NOO: National Obesity Observatory
- NWPHO: North West Public Health Observatory
- ONS: Office for National Statistics
- OSP: Occupational Sick Pay
- PCT: Primary Care Trust
- PSA: Public Service Agreement
- QALY: Quality Adjusted Life Year
- QIPP: Quality, Innovation, Productivity and Prevention
- STI: Sexually Transmitted Infection
- WHO: World Health Organization
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