



*National Institute for
Health and Clinical Excellence*

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Behaviour change at population, community and individual levels

**NICE public health guidance 6
'Behaviour change at population, community and individual levels'**

Ordering information

You can download the following documents from www.nice.org.uk/PH006

- The NICE guidance (this document) which includes all the recommendations and details of how they were developed.
- A quick reference guide for professionals and the public.
- Supporting documents, including an evidence review and an economic analysis.

For printed copies of the quick reference guide, phone the NHS Response Line on 0870 1555 455 and quote N1230.

This guidance represents the views of the Institute and was arrived at after careful consideration of the evidence available. Those working in the NHS, local authorities, the wider public, voluntary and community sectors and the private sector should take it into account when carrying out their professional, managerial or voluntary duties.

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Introduction

The Department of Health asked the National Institute for Health and Clinical Excellence (NICE or the Institute) to produce public health guidance on the most appropriate generic and specific interventions to support attitude and behaviour change at population and community levels.

This guidance provides a set of generic principles that can be used as the basis for planning, delivering and evaluating public health activities aimed at changing health-related behaviours. The guidance should be read in conjunction with other topic-specific public health guidance issued by NICE. It does not replace any of this guidance.

Future NICE guidance that aims to change people's behaviour will be based on the principles outlined in this guidance.

The guidance is for NHS and non-NHS professionals and others who have a direct or indirect role in, and responsibility for, helping people change their health-related knowledge, attitudes and behaviour. This includes national policy makers in health and related sectors (including those with a responsibility for planning or commissioning media, marketing or other campaigns), and commissioners, providers and practitioners in the NHS, local government, the community and voluntary sectors. It is also relevant for the research community (including those who oversee research funding), social and behavioural scientists, and health economists working in the area of health-related knowledge, attitude and behaviour change.

The Programme Development Group (PDG) has considered a range of evidence, key theories, economic data, stakeholder comments and the results of fieldwork in developing these recommendations.

Details of membership of the PDG are given in appendix A. The methods used to develop the guidance are summarised in appendix B. Supporting documents used in the preparation of this document are listed in appendix E. Full details of the evidence collated, including fieldwork data and activities and

stakeholder comments, are available on the NICE website, along with a list of the stakeholders involved and the Institute's supporting process and methods manuals. The website address is: www.nice.org.uk

This guidance was developed using the NICE public health programme process.

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1 Public health need and practice

There is overwhelming evidence that changing people's health-related behaviour can have a major impact on some of the largest causes of mortality and morbidity. The Wanless report (Wanless 2004) outlined a position in the future in which levels of public engagement with health are high, and the use of preventive and primary care services are optimised, helping people to stay healthy. This 'fully engaged' scenario, identified in the report as the best option for future organisation and delivery of NHS services, requires changes in behaviours and their social, economic and environmental context to be at the heart of all disease prevention strategies.

Behaviour plays an important role in people's health (for example, smoking, poor diet, lack of exercise and sexual risk-taking can cause a large number of diseases). In addition, the evidence shows that different patterns of behaviour are deeply embedded in people's social and material circumstances, and their cultural context.

Interventions to change behaviour have enormous potential to alter current patterns of disease. A genetic predisposition to disease is difficult to alter. Social circumstances can also be difficult to change, at least in the short to medium term. By comparison, people's behaviour – as individuals and collectively – may be easier to change. However, many attempts to do this have been unsuccessful, or only partially successful. Often, this has been because they fail to take account of the theories and principles of successful planning, delivery and evaluation. At present, there is no strategic approach to behaviour change across government, the NHS or other sectors, and many different models, methods and theories are being used in an uncoordinated way.

Identifying effective approaches and strategies that benefit the population as a whole will enable public health practitioners, volunteers and researchers to operate more effectively, and achieve more health benefits with the available resources.

Health inequalities

Social and economic position is directly linked to health. In the UK, there is a health inequalities gradient, with the least advantaged experiencing the worst health. Social and economic conditions can prevent people from changing their behaviour to improve their health, and can also reinforce behaviours that damage it.

Health inequalities are the result of a set of complex interactions, including:

- the long-term effects of a disadvantaged social position
- differences in access to information, services and resources
- differences in exposure to risk
- lack of control over one's own life circumstances
- a health system that may reinforce social and economic inequalities.

These factors all affect people's ability to withstand the stressors – biological, social, psychological and economic – that can trigger ill health. They also affect the capacity to change behaviour.

Changing behaviour

Actions to bring about behaviour change may be delivered at individual, household, community or population levels using a variety of means or techniques. The outcomes do not necessarily occur at the same level as the intervention itself. For example, population-level interventions may affect individuals, and community- and family-level interventions may affect whole populations.

Significant events or transition points in people's lives present an important opportunity for intervening at some or all of the levels, because it is then that people often review their own behaviour and contact services. Typical transition points include: leaving school, entering the workforce, becoming a parent, becoming unemployed, retirement and bereavement.

This guidance provides a systematic, coherent and evidence-based approach, considering generic principles for changing people's health-related knowledge, attitudes and behaviour, at individual, community and population levels.

Strategies for reaching and working with disadvantaged groups are considered and the health equity implications assessed.

2 Considerations

The PDG took account of a number of factors and issues in making the recommendations.

Key theories

- 2.1 The PDG was influenced by a number of different theories, concepts and accounts of behaviour and behaviour change, drawn from the social and behavioural sciences. These include: resilience, coping, self-efficacy, planned behaviour, structure and agency, 'habitus' and social capital. (Ajzen 1991, 2001; Antonovsky 1985, 1987; Bandura 1997; Bourdieu 1977, 1986; Conner and Sparks 2005; Giddens 1979, 1982, 1984; Lazarus 1976, 1985; Lazarus and Folkman 1984; Morgan and Swann 2004; Putnam 2000.) (For more details see appendix A.)
- 2.2 The PDG discussed efforts to use policy and legislation to change behaviour (although relatively little formal evidence on legislation was identified). Such measures tend to work through a combination of awareness-raising, compulsion and enforcement, providing legislative or environmental 'structure' to the decisions people make about their behaviour. It was noted that legislation can appear to be a simple and powerful tool, and the evidence suggests that introducing legislation, in conjunction with other interventions, can be effective at the individual, community and population levels. However, it also suggests that it can be subject to contingencies and side effects,

including criminalisation, compensating or displaced behaviour, and lack of public support (Gostin 2000; Haw et al. 2006; WHO 2005).

- 2.3 The PDG observed that people's health behaviours may change, depending on their social and material circumstances and their time of life. It was also noted that many other factors (such as place of birth, parental income, education and employment opportunities, or the impact of prejudice and discrimination) can have both direct and indirect effects on health, and on people's ability to change, leading to a cumulative effect over the life course (Graham and Power 2004; Kuh et al. 1997). The PDG considered the concept of the life course and evidence was sought on the potential benefits of intervening at key life stages or transition points. Explicit, formal evidence (at the level searched) was scarce.
- 2.4 The PDG further noted that the knowledge and evidence from different disciplines are very different in the concepts they use, the assumptions they make about cause and explanation, and (sometimes) the methods that they favour. Consequently, combining knowledge and evidence from different levels – such as the social and the individual – is extremely difficult. To ensure that as broad a range as possible of knowledge and evidence was taken into account, the PDG adopted a pluralistic approach that acknowledged the value of different forms of evidence and research methods.
- 2.5 The psychological literature is extensive and provides a number of general models of health behaviour and behaviour change. However, the research literature evaluating the relevance and use of these models is inconsistent. For example, it includes multiple adaptations of particular models, poor study designs and studies that fail to take account of all the confounding factors. Having considered some of the more commonly used models of health behaviour, the PDG concluded that the evidence did not support any particular model (although some have more evidence of effectiveness than others). For this reason, it believes training should focus on generic

competencies and skills, rather than on specific models. These include the ability to:

- critically evaluate the evidence for different approaches to behaviour change
- design valid and reliable interventions and programmes, that take account of the social, environmental and economic context of behaviours
- Identify and use clear and appropriate outcome measures to assess changes in behaviour
- employ a range of behaviour change methods and approaches, according to the best available evidence
- regularly review the allocation of resources to interventions and programmes in light of current evidence.

Definitions

- 2.6 For the purposes of this guidance, human behaviour is defined as: 'the product of individual or collective human actions, seen within and influenced by their structural, social and economic context'. These actions produce observable social, cultural and economic patterns which limit – or enable – what individuals can do. The recommendations in this guidance span the individual, social and group processes involved in human behaviour.
- 2.7 The PDG considered the psychological models showing relationships between knowledge, attitudes and behaviour, according to the various definitions outlined in the identified literature. The PDG noted that for some actions the links between intentions and behaviour can be described precisely. However, simple models do not capture more complex or population-level dynamics.
- 2.8 Although the evidence on psychological models was found to be limited, a number of concepts drawn from the psychological literature are helpful when planning work on behaviour change with individuals.

When used in conjunction with recommendations here on planning and social context, these concepts could be used to structure and inform interventions. They include:

- outcome expectancies (helping people to develop accurate knowledge about the health consequences of their behaviours)
- personal relevance (emphasising the personal salience of health behaviours)
- positive attitude (promoting positive feelings towards the outcomes of behaviour change)
- self-efficacy (enhancing people's belief in their ability to change)
- descriptive norms (promoting the visibility of positive health behaviours in people's reference groups – that is, the groups they compare themselves to, or aspire to)
- subjective norms (enhancing social approval for positive health behaviours in significant others and reference groups)
- personal and moral norms (promoting personal and moral commitments to behaviour change)
- intention formation and concrete plans (helping people to form plans and goals for changing behaviours, over time and in specific contexts)
- behavioural contracts (asking people to share their plans and goals with others)
- relapse prevention (helping people develop skills to cope with difficult situations and conflicting goals).

2.9 Coordinated attempts to promote or support behaviour change can take a number of forms. These activities can also be delivered at a number of levels, ranging from local, one to one interactions with individuals to national campaigns. Many terms are used to describe these activities and sometimes these are used interchangeably (see glossary). Broadly, interventions can be divided into four main categories:

- policy – such as legislation, workplace policies or voluntary agreements with industry
- education or communication – such as one to one advice, group teaching or media campaigns
- technologies – such as the use of seat belts, breathalysers or child proof containers for toxic products
- resources – such as leisure centre entry, free condoms or free nicotine replacement therapy.

2.10 This guidance adopts the NICE definitions for public health interventions and programmes, unless another specific term has been used in the literature (such as ‘campaign’ to refer to a media initiative). See ‘The public health guidance development process: an overview for stakeholders including public health practitioners, policy makers and the public’ (details in appendix E).

2.11 Whether an intervention or programme is delivered to individuals, in community or family settings, or at population level, the effects are rarely 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 (for example, level of alcohol consumption, individual health outcomes, or incidence of domestic violence)
- on the local community (for example, local alcohol sales, alcohol-related crime or accident and emergency [A&E] events)
- at population level (for example, national alcohol sales and consumption, national statistics on alcohol-related crime and A&E events, or demographic patterns of liver cirrhosis).

Planning and design

2.12 The PDG noted that it is important to specify three things with respect to any intervention that aims to change behaviour. First, be as

specific as possible about its content. Second, spell out what is done, to whom, in what social and economic context, and in what way.

Third, make it clear which underlying theories will help make explicit the key causal links between actions and outcomes (Davidson et al. 2003; Pawson 2006; Weiss 1995). The PDG noted that the evidence is often very weak in these respects.

2.13 It is important for those planning health improvement interventions to be clear about the behaviours that need to be changed, any relevant contextual changes that also need to be made, and the level at which the intervention will be delivered (individual, community or population). The following questions should be used as a guide:

- Whose health are you seeking to improve (target population/s)?
- What behaviour are you seeking to change (behavioural target)?
- What contextual factors need to be taken into account (what are the barriers to and opportunities for change and what are the strengths/potential of the people you are working with)?
- How will you know if you have succeeded in changing behaviour (what are your intended outcomes and outcome measures)?
- Which social factors may directly affect the behaviour, and can they be tackled?
- What assumptions have been made about the theoretical links between the intervention and outcome?

2.14 A range of resources provide access to good quality, up-to-date evidence on the effectiveness of interventions and programmes aimed at changing behaviour. These include: NICE public health guidance, research and review databases (for example, the Database of Abstracts of Reviews of Effectiveness, the Cochrane Library, Medline, and the Social Science Citation Index), and current texts on behaviour change (for example, Conner and Norman 2005).

When drawing up plans to change people's behaviour, enough time needs to be set aside to consult these resources to establish which interventions and programmes will be most appropriate.

- 2.15 Time and resources should be set aside for evaluation. The size and nature of the intervention, its aims and objectives and the underlying theory of change used should determine the form of evaluation (see below).
- 2.16 Attempts to change behaviour have not always led to universal improvements in the population's health. For example, different groups (measured by age, socioeconomic position, ethnicity or gender) react differently to incentives and disincentives, or 'fear' messages. Effective interventions target specific groups and are tailored to meet their needs. This is particularly important where health equity is one of the goals. Service user views may be helpful when planning interventions.
- 2.17 The cultural acceptability and value of different forms of behaviour varies according to age, ethnicity, gender and socioeconomic position. It is important not to stereotype or stigmatise groups or individuals because of these variations. This can be avoided by working closely with communities over time, by tackling prejudice and discrimination in professional practice, and by using needs assessments to gather local and cultural information to ensure interventions are tailored appropriately.
- 2.18 Changing behaviour may not be a priority for the individuals being targeted. People do not necessarily make their own long-term health a priority and may want to focus on other, more immediate needs and goals (for example, relieving stress, or complying with peer pressure).
- 2.19 Some damaging and, therefore, apparently negative health behaviours may provide positive psychological, social or physical benefits for individuals in certain social and cultural contexts. For example, smoking cigarettes may provide 'time out' for people in

difficult circumstances. Effective interventions take account of the social, cultural and economic acceptability of the intervention and the target group's attitudes toward the behaviour. They recognise diversity in the values people use to guide their lives and behaviour.

- 2.20 Interventions may have unintended and negative consequences. When planning an intervention, it is often helpful to conduct a prospective health and equity impact assessment.
- 2.21 No single method can be universally applied to influence all behaviour and all people. Universal interventions do not invariably have uniform effects, and may be more effective among some population groups, or in some settings, than others.
- 2.22 An intervention aimed at changing one behaviour may inadvertently lead to other changes. For example, someone who gives up smoking may start eating more food to compensate, leading to other health risks.
- 2.23 Motivated individuals actively seeking to make changes in their behaviour require a different approach from those who are unmotivated. The latter may need more information about the benefits of change, as well a realistic plan of action. Equally, different methods may be required at different times and to reach different people. This guidance identifies the broad principles.
- 2.24 Enabling individuals and communities to develop more control (or enhancing their perception of control) over their lives can act as a buffer against the effects of disadvantage, facilitating positive behaviour change.
- 2.25 A range of cognitive, social and environmental resources can help to boost the resilience of people living in difficult circumstances. These resources can help promote their health and protect them against illness and other negative outcomes. They include a positive attitude to health (leading to positive, health-related behaviours), coping skills

and 'social capital', the relationships of trust and reciprocity built up through, for example, friendship, family and faith networks.

2.26 Action taken earlier, rather than later, in an individual's life can sometimes be more effective at preventing health-damaging behaviours. Consequently, interventions that focus on children and young people (and usually, their carers too) are important. However, interventions with other population groups can be highly effective and cost effective. An example is action to prevent falls among older people.

2.27 All interventions need to be developed and evaluated in stages, using an established approach such as the Medical Research Council's framework for the development and evaluation of complex interventions (Campbell et al. 2000; see also Campbell et al. 2007; Flay 1986; Nutbeam 1998). Such an approach will help ensure interventions are based on the best available evidence of feasibility, acceptability, safety, effectiveness, efficiency or equity.

Delivery

2.28 As well as focusing on individual factors, it is important that policy makers and commissioners take steps to address the social, environmental, economic and legislative factors that affect people's ability to change their behaviour.

2.29 A large number of mechanisms could be used to influence behaviour but the amount of evidence varies. Generally, there is far more evidence on activities aimed at individuals than on policies and other activities aimed at tackling the wider determinants of health. The evidence on efficacy and equity is also variable. The PDG could not review all the possibilities, but noted that the following mechanisms were successful in some circumstances:

- legislation and taxation
- mass media campaigns

- social marketing
- community programmes
- point of sale promotions.

2.30 Population-level interventions have the greatest potential, however, if supported by government and implemented effectively. (Legislation making it compulsory to wear seatbelts in the front seats of cars is an example of a highly effective, population-level intervention.)

2.31 Epidemiological theory suggests that even small degrees of change, over time, can result in significant improvements in population-level health (Rose 1985). Population-level interventions could be an effective and cost-effective way of changing behaviour.

2.32 The PDG noted that a wide range of policies and the actions of a range of government and non-governmental organisations impact directly and indirectly on health. (Relevant policies and actions include those related to taxation, the licensing laws and the benefits system.) This could be explicitly acknowledged by carrying out routine health impact assessments on how a policy, law or system affects people's health-related behaviour. It could also be acknowledged through partnership and cross-government working.

2.33 The level of skills, knowledge and the competencies required by those providing health-related interventions will differ, according to their specific role. However, some are central to most public health activity. These include: knowledge of the full range of difference approaches to behaviour change, competence in planning and evaluation, understanding the principles of non-discriminatory practice; and the ability to use evidence from research and practice.

2.34 The PDG noted that the capacity of the public health workforce requires assessment. An education and training strategy to support the development needs of those involved in helping to change people's behaviour (within both NHS and non-NHS settings) could improve effectiveness. National training standards to reflect the skills

and competencies described in the recommendations would support their implementation.

Evaluation

- 2.35 The distinction between monitoring and evaluation is important. Monitoring involves routinely collecting information on a day to day basis and using shared information resources and statistics to keep local and national health activity under surveillance. It is part of quality and safety assurance. Evaluation, on the other hand, is the formal assessment of the process and impact of a programme or intervention. Where an intervention is employed that has already been rigorously evaluated (for example, in NICE public health guidance) and demonstrated to be effective in equivalent conditions, then monitoring, rather than a full evaluation, is likely to be sufficient.
- 2.36 Complex public health interventions can be systematically evaluated, based on the relevant theory and evidence, if they use a well-planned, 'staged' approach to evaluation.
- 2.37 Formal outcome and process evaluation can be challenging, but it is an important way of assessing efforts to change behaviour. An effective evaluation is based on clearly defined outcome measures – at individual, community and population levels, as appropriate. Qualitative research looking at the experience, meaning and value of changes to individuals may also be appropriate. Methods and outcome measures are identified during the planning phase. In addition, effective interventions specify their 'programme theory' (or reason why particular actions are expected to have particular outcomes). They also use a framework of 'action – reason – outcome' to guide evaluation (Campbell et al. 2000; Campbell et al. 2007; Flay 1986; Nutbeam 1998; Pawson 2006; Weiss 1995).

3 Recommendations

This document is the Institute's formal guidance on generic principles that should be used as the basis of initiatives to support attitude and behaviour change. When developing the principles the PDG (see appendix A) considered the evidence of effectiveness (including cost effectiveness), relevant theory, fieldwork data and comments from stakeholders. Full details are available on the Institute's website at: www.nice.org.uk/PH006.

The reviews that informed this guidance are listed in appendix B. The evidence reviews, supporting evidence statements and economic appraisal are available on the Institute's website at: www.nice.org.uk/PH006.

Key theories, concepts, and other evidence that informed this guidance are listed in appendix C.

On the basis of the evidence considered, the PDG believes that where interventions and programmes are applied appropriately, according to the principles outlined in this guidance and in conjunction with other topic-specific NICE guidance, then they are likely to be cost effective. In some circumstances, they will save money.

For the research recommendations and other gaps in the evidence see section 5 and appendix D, respectively.

The guidance highlights the need to:

- Plan carefully interventions and programmes aimed at changing behaviour, taking into account the local and national context and working in partnership with recipients. Interventions and programmes should be based on a sound knowledge of community needs and should build upon the existing skills and resources within a community.
- Equip practitioners with the necessary competencies and skills to support behaviour change, using evidence-based tools. (Education providers should ensure courses for practitioners are based on theoretically informed, evidence-based best practice.)

- Evaluate all behaviour change interventions and programmes, either locally or as part of a larger project. Wherever possible, evaluation should include an economic component.

Planning

Principle 1: planning interventions and programmes

Target audience

Policy makers, commissioners, service providers, practitioners and others whose work impacts on, or who wish to change, people's health-related behaviour.

Recommended action

- Work in partnership with individuals, communities, organisations and populations to plan interventions and programmes to change health-related behaviour. The plan should:
 - be based on a needs assessment or knowledge of the target audience
 - take account of the circumstances in which people live, especially the socioeconomic and cultural context
 - aim to develop – and build on – people's strengths or 'assets' (that is, their skills, talents and capacity)
 - set out how the target population, community or group will be involved in the development, evaluation and implementation of the intervention or programme
 - specify the theoretical link between the intervention or programme and its outcome
 - set out which specific behaviours are to be targeted (for example, increasing levels of physical activity) and why
 - clearly justify any models that have been used to design and deliver an intervention or programme

- assess potential barriers to change (for example, lack of access to affordable opportunities for physical activity, domestic responsibilities, or lack of information or resources) and how these might be addressed
 - set out which interventions or programmes will be delivered and for how long
 - describe the content of each intervention or programme
 - set out which processes and outcomes (at individual, community or population level) will be measured, and how
 - include provision for evaluation.
- Prioritise interventions and programmes that:
 - are based on the best available evidence of efficacy and cost effectiveness
 - can be tailored to tackle the individual beliefs, attitudes, intentions, skills and knowledge associated with the target behaviours
 - are developed in collaboration with the target population, community or group and take account of lay wisdom about barriers and change (where possible)
 - are consistent with other local or national interventions and programmes (where they are based on the best available evidence)
 - use key life stages or times when people are more likely to be open to change (such as pregnancy, starting or leaving school and entering or leaving the workforce)
 - include provision for evaluation.
- Disinvest in interventions or programmes if there is good evidence to suggest they are not effective.
- Where there is poor or no evidence of effectiveness (or the evidence is mixed) ensure that interventions and programmes are properly evaluated whenever they are used.

- Help to develop social approval for health-enhancing behaviours, in local communities and whole populations.

Principle 2: assessing social context

Target audience

NHS and non-NHS policy makers and commissioners planning behaviour change interventions or programmes for communities or populations, especially disadvantaged or excluded groups.

Recommended action

- Identify and attempt to remove social, financial and environmental barriers that prevent people from making positive changes in their lives, for example, by tackling local poverty, employment or education issues.
- Consider in detail the social and environmental context and how it could impact on the effectiveness of the intervention or programme.
- Support structural improvements to help people who find it difficult to change, or who are not motivated. These improvements could include changes to the physical environment or to service delivery, access and provision.

Principle 3: education and training

Target audience

Policy makers, commissioners, trainers, service providers, curriculum developers and practitioners.

Recommended action

- Provide training and support for those involved in changing people's health-related behaviour so that they can develop the full range of competencies required. These competencies include the ability to:

- identify and assess evidence on behaviour change
 - understand the evidence on the psychological, social, economic and cultural determinants of behaviour
 - interpret relevant data on local or national needs and characteristics
 - design, implement and evaluate interventions and programmes
 - work in partnership with members of the target population(s) and those with local knowledge.
- Appropriate national organisations (for example, the Faculty of Public Health, the British Psychological Society, the Chartered Institute of Environmental Health and the Nursing and Midwifery Council) should consider developing standards for these competencies and skills. The standards should take into account the different roles and responsibilities of practitioners working both within and outside the NHS.
 - Ensure fair and equitable access to education and training, to enable practitioners and volunteers who help people to change their health-related behaviour to develop their skills and competencies.
 - Review current education and training practice in this area, and disinvest in approaches that lack supporting evidence.

Delivery

Principle 4: individual-level interventions and programmes

Target audience

Commissioners, service providers and practitioners working with individuals.

Recommended action

- Select interventions that motivate and support people to:

- understand the short, medium and longer-term consequences of their health-related behaviours, for themselves and others
- feel positive about the benefits of health-enhancing behaviours and changing their behaviour
- plan their changes in terms of easy steps over time
- recognise how their social contexts and relationships may affect their behaviour, and identify and plan for situations that might undermine the changes they are trying to make
- plan explicit ‘if–then’ coping strategies to prevent relapse
- make a personal commitment to adopt health-enhancing behaviours by setting (and recording) goals to undertake clearly defined behaviours, in particular contexts, over a specified time
- share their behaviour change goals with others.

Principle 5: community-level interventions and programmes

Target audience

NHS and non-NHS policy makers and commissioners planning behaviour change interventions and programmes for communities or subgroups in the population.

Recommended action

- Invest in interventions and programmes that identify and build on the strengths of individuals and communities and the relationships within communities. These include interventions and programmes to:
 - promote and develop positive parental skills and enhance relationships between children and their carers
 - improve self-efficacy
 - develop and maintain supportive social networks and nurturing relationships (for example, extended kinship networks and other ties)

- support organisations and institutions that offer opportunities for local people to take part in the planning and delivery of services
- support organisations and institutions that promote participation in leisure and voluntary activities
- promote resilience and build skills, by promoting positive social networks and helping to develop relationships
- promote access to the financial and material resources needed to facilitate behaviour change.

Principle 6: population-level interventions and programmes

Target audience

National policy makers, commissioners and others whose work impacts on population-level health-related behaviour.

Recommended action

- Deliver population-level policies, interventions and programmes tailored to change specific, health-related behaviours. These should be based on information gathered about the context, needs and behaviours of the target population(s). They could include:
 - fiscal and legislative interventions
 - national and local advertising and mass media campaigns (for example, information campaigns, promotion of positive role models and general promotion of health-enhancing behaviours)
 - point of sale promotions and interventions (for example, working in partnership with private sector organisations to offer information, price reductions or other promotions).
- Ensure population-level interventions and programmes aiming to change behaviour are consistent with those delivered to individuals and communities.

- Ensure interventions and programmes are based on the best available evidence of effectiveness and cost effectiveness.
- Ensure the risks, costs and benefits have been assessed for all target groups.

Evaluation

Principle 7: evaluating effectiveness

Target audience

Researchers, policy makers, commissioners, service providers and practitioners whose work impacts on, or who wish to change, people's health-related behaviour.

Recommended action

- Ensure funding applications and project plans for new interventions and programmes include specific provision for evaluation and monitoring.
- Ensure that, wherever possible, the following elements of behaviour change interventions and programmes are evaluated using appropriate process or outcome measures:
 - effectiveness
 - acceptability
 - feasibility
 - equity
 - safety.

Principle 8: assessing cost effectiveness

Target audience

Policy makers, research funders, researchers and health economists.

Recommended action

- Collect data for cost-effectiveness analysis, including quality of life measures. Where practicable, estimate the cost savings (if any) when researching or evaluating behaviour change interventions and programmes. This is particularly pertinent for research:
 - on mid- to long-term behaviour change
 - comparing the effectiveness and efficiency of interventions and programmes delivered to different population groups (for example, low- versus high-income groups, men versus women, young versus older people)
 - comparing the cost effectiveness of primary prevention versus clinical treatment for behaviour-related diseases.

4 Implementation

NICE guidance can help:

- NHS organisations meet DH standards for public health as set out in the seventh domain of '[Standards for better health](#)' (updated in 2006). Performance against these standards is assessed by the Healthcare Commission, and forms part of the annual health check score awarded to local healthcare organisations.
- NHS organisations and local authorities (including social care and children's services) meet the requirements of the government's 'National standards, local action, health and social care standards and planning framework 2005–2008'.
- National and local organisations within the public sector meet government indicators and targets to improve health and reduce health inequalities.
- Local authorities fulfil their remit to promote the economic, social and environmental wellbeing of communities.

- Local NHS organisations, local authorities and other local public sector partners benefit from any identified cost savings, disinvestment opportunities or opportunities for re-directing resources.
- Provide a focus for children’s trusts, health and wellbeing partnerships and other multi-sector partnerships working on health within a local strategic partnership.

NICE has developed tools to help organisations implement this guidance. The tools will be available on our website (www.nice.org.uk/PH006).

- Slides highlighting key messages for local discussion.
- Costing statement.

5 Recommendations for research

The PDG has made the following recommendations to plug the most important gaps in the evidence.

Recommendation 1

Who should take action?

Research councils, national and local research commissioners and funders, research workers and journal editors.

What action should they take?

- Include as standard in research reports:
 - a description of what was delivered, over what period, to whom and in what setting
 - information on the impact on health
 - clear definitions of the ‘health outcomes’ measured
 - a report of differences in access, recruitment, and (where relevant data are available) uptake, according to socio-

- economic and cultural variables such as social class, education, gender, income or ethnicity
 - a description and rationale of the research methods and forms of interpretation used, and where relevant the reliability and validity of the measures of behaviour change adopted.
- Ensure research studies on behaviour change always:
 - identify and account for the different components of change among different social groups
 - pay attention to minority ethnic and religious groups
 - include social variables wherever possible (for example, social class or education) in every study
 - consider the impact of age and gender on the effectiveness of interventions and programmes.
- Promote the inclusion of process as well as outcome data.
- Encourage those in charge of randomised controlled trials on health-related behaviour change to register with a trial register.

Recommendation 2

Who should take action?

Research commissioners and funders.

What action should they take?

- Encourage research that takes into account the social and cultural contexts in which people adapt or change their behaviour and the factors that encourage or inhibit change. These include:
 - the role of support networks, neighbourhood resources and community action
 - the relationships that help protect and build people's resilience

- the way people adapt positively to adverse socio-structural conditions
 - social processes that strengthen the mutual support provided by families and other forms of households
 - the clustering of health behaviours
 - the material circumstances in which people live, including income levels, environmental characteristics of neighbourhoods and work-related factors.
- Use embedded process evaluations that include the perspectives of recipients.
 - When studying the mechanisms of adaptation and change, use mixed method ethnographic research, longitudinal studies and qualitative approaches, as well as multivariate and interactive statistical models.
 - Support development of new methods for collating and synthesising a range of evidence on effectiveness. These methods should meet the highest scientific standards.

Recommendation 3

Who should take action?

Policy makers, research commissioners and local service providers.

What action should they take?

- Collect baseline data at the outset of interventions or policy changes and allow for an adequate length of time for evaluation.
- Develop evaluative approaches which can accommodate the complexities inherent in community and population-level interventions or programmes, including multiple and confounding factors.

- Develop methods for synthesising and interpreting results across studies conducted in different localities, policy environments and population groups.
- Formulate rigorous and transparent methods for assessing external validity and for translating evidence into practice.

Recommendation 4

Who should take action?

Policy makers, research funders and health economists.

What action should they take?

As a matter of urgency, commission research on the cost-effectiveness of behaviour change interventions. This should cover:

- interventions over the mid to long term
- interventions aimed at specific population groups (for example, low-income groups, men versus women, young people versus older people)
- primary prevention versus clinical treatment for behaviour-related disease.

More detail on the evidence gaps identified during the development of this guidance is provided in appendix D.

6 Updating the recommendations

NICE public health guidance is updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guidance should be updated. If important new evidence is published at other times, we may decide to update some recommendations at that time.

7 Related NICE guidance

Much of NICE guidance, both published and in development, is concerned with changing people's knowledge, attitudes and behaviours to prevent and tackle disease and illness. For more details go to: www.nice.org.uk/guidance

8 References

Ajzen I (1991) The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes* 50: 179–211.

Ajzen I (2001) Nature and operation of attitudes. *Annual Review of Psychology* 52: 27–58.

Antonovsky A (1985) *Health stress and coping*. San Francisco: Jossey Bass.

Antonovsky A (1987) *Unravelling the mystery of health: how people manage stress and stay well*. San Francisco: Jossey Bass.

Bandura A (1997) *Self-efficacy: the exercise of control*. New York: Freeman.

Bourdieu P (1977) *Outline of a theory of practice*. Cambridge: Cambridge University Press.

Bourdieu P (1986) The forms of capital. In Richardson J, editor *Handbook of theory and research for the sociology of education*. New York: Greenwood Press.

Campbell M, Fitzpatrick R, Haines A et al. (2000) Framework for design and evaluation of complex interventions to improve health. *British Medical Journal* 321:694–6.

Campbell NC, Murray E, Darbyshire J et al. (2007) Designing and evaluating complex interventions to improve health care. *British Medical Journal* 334: 455–9.

Conner M, Norman P (2005) *Predicting health behaviour: research and practice with social cognition models*. Maidenhead: Open University Press.

Conner M, Sparks P (2005) Theory of planned behaviour and health behaviour. In Conner M, Norman P Predicting health behaviour: Research and practice with social cognition models. Maidenhead: Open University Press.

Davidson K, Goldstein M, Kaplan RM et al. (2003) Evidence-based behavioral medicine: what it is and how do we achieve it? *Annals of Behavioral Medicine* 26:161–71.

Flay BR (1986) Efficacy and effectiveness trials (and other phases of research) in the development of health promotion programmes. *Preventive Medicine* 15: 451–74.

Giddens A (1979) *Central problems in social theory: action, structure and contradiction in social analysis*. Berkeley: University of California Press.

Giddens A (1982) *Profiles and critiques in social theory*. London: Macmillan.

Giddens A (1984) *The constitution of society: outline of the theory of structuration*. Berkeley: University of California Press.

Graham H, Power C (2004) Childhood disadvantage and adult health: a lifecourse framework [online]. Available from:

www.nice.org.uk/page.aspx?o=502707

Gostin L (2000) *Public health law*. California: University of California Press.

Haw S, Gruer L, Amos A et al. (2006) Legislation on smoking in enclosed places in Scotland. *Journal of Public Health* 28: 24–30.

Kuh D, Power C, Blane D et al. (1997) Social pathways between childhood and adult health. In Kuh DL, Ben-Shlomo Y, editors. *A life course approach to chronic disease epidemiology: tracing the origins of ill health from early to adult life*. Oxford: Oxford University Press.

Lazarus R (1976) *Patterns of adjustment*. New York: McGraw Hill.

Lazarus RS (1985) The costs and benefits of denial. In Monat A, Lazarus R Stress and coping: an anthology. New York: Columbia University Press.

Lazarus R, Folkman S (1984) Stress, appraisal and coping. New York: Springer.

Morgan A, Swann C, editors (2004) Social capital for health: issues of definition, measurement and links to health. London: Health Development Agency.

Nutbeam D (1998) Evaluating health promotion – progress, problems and solutions. Health Promotion International 13: 27–44.

Pawson R (2006) Evidence based policy: a realist perspective. London: Sage.

Putnam R (2000) Bowling alone: the collapse and revival of American community. New York: Simon & Schuster.

Rose G (1985) Sick individuals and sick populations. International Journal of Epidemiology 14: 32–8.

Wanless D (2004) Securing good health for the whole population: final report. London: HM Treasury.

Weiss CH (1995) Nothing as practical as good theory: exploring theory-based evaluation for comprehensive community initiatives for children and families. In Connell JP, Kubisch A, Schorr LB et al. editors. New approaches to evaluating community initiatives: concepts, methods and context. Washington DC: Aspen Institute.

WHO (2005) Seventh futures forum on unpopular decisions in public health. Regional office for Europe [online]. Available from: www.euro.who.int/InformationSources/Publications/Catalogue/20050608_1

9 Glossary

Assets

Assets are the skills, talents and capacity that individuals, associations and organisations can share to improve the life of a community. An assets approach focuses on the strengths rather than the weaknesses (or deficiencies) found in groups or communities.

Communities

For the purposes of this guidance, communities are defined as social or family groups linked by networks, geographical location or another common factor.

Determinants of health

The wide range of personal, social, economic and environmental factors which determine the health status of people or communities. These include health behaviours and lifestyles, income, education, employment, working conditions, access to health services, housing and living conditions and the wider general material and social environment.

Health inequalities

The gap or gradient in health, usually measured by mortality and morbidity, between population groups identified by social characteristics, including different social classes, ethnic groups, wealth and income groups, genders, educational groups, housing and geographical areas.

Interventions

Clearly circumscribed actions that help promote or maintain a healthy lifestyle.

Life course

The life course is a term used in social epidemiology to describe the accumulation of material, social and biological advantages and disadvantages during a lifetime.

Population

The aggregate of individuals defined by membership of a social, geographic,

political or economic unit (for example, members of a state, a region, a city or a cultural group).

Programmes

Multi-agency, multi-packages and/or a series of related policies, services and interventions or other actions focused on broad strategic issues. They can involve a suite of activities that may be topic, setting or population based – and may involve changes to organisational infrastructures.

Promoting and supporting behaviour change

A number of terms are used to describe attempts to promote or support behaviour change and sometimes these are used interchangeably. They include: initiative, scheme, action, activity, campaign, policy, strategy, procedure, programme, intervention and project.

Resilience

The ability to withstand or even respond positively to stressors, crises or difficulties.

Self-efficacy

Self-efficacy is a person's estimate or personal judgment of his or her own ability to succeed in reaching a specific goal.

Social capital

Social capital is commonly defined as those features of a society, such as networks, social trust and cohesion, that facilitate cooperation among people for mutual benefit.

Socioeconomic status

A person's position in society, as determined by criteria such as income, level of education achieved, occupation and value of property owned.

Transition points

Points of change during a lifetime or the life course (for a definition of life course, see above). Examples include: leaving school, entering or leaving a significant relationship, starting work, becoming a parent or retiring from work.

Appendix A: membership of the Programme Development Group, the NICE Project Team and external contractors

The Programme Development Group (PDG)

PDG membership is multidisciplinary. It comprises researchers, practitioners, stakeholder representatives and members of the public as follows.

Professor Charles Abraham Professor of Psychology, Department of Psychology, University of Sussex

(CHAIR) Professor Mildred Blaxter Hon. Professor of Medical Sociology, Department of Social Medicine, Bristol University

Dr Vicky Cattell Senior Research Fellow, Centre for Psychiatry, Queen Mary, University of London

Ms Vimla Dodd Community Member

Professor Christine Godfrey Professor of Health Economics, Department of Health Sciences and Centre for Health Economics, University of York

Dr Karen Jochelson Fellow, Health Policy, King's Fund

Ms Miranda Lewis Senior Research Fellow, Institute for Public Policy Research

Mr Terence Lewis Community Member

Professor Miranda Mugford Professor of Health Economics, School of Medicine and Health Policy and Practice, University of East Anglia

Professor Ray Pawson Professor of Social Research Methodology and Research Director, School of Sociology and Social Policy, University of Leeds

Professor Jennie Popay Professor of Sociology and Public Health, Institute for Health Research, University of Lancaster

Professor Wendy Stainton Rogers Professor of Health Psychology, Faculty of Health and Social Care, The Open University

Professor Stephen Sutton Professor of Behavioural Science, Institute of Public Health, University of Cambridge

Professor Martin White Professor of Public Health, Institute of Health and Society, Newcastle University

Ms Ann Williams Community Member

Dr David Woodhead Development Manager Public Health, The Healthcare Commission

Expert cooptees to the PDG

Professor Roisin Pill Emeritus Professor, University of Wales College of Medicine

Professor Robert West Professor of Health Psychology and Director of Tobacco Studies, Cancer Research UK Health Behaviour Unit, University College London

NICE Project Team

Professor Mike Kelly

Director of CPHE

Jane Huntley

Associate Director of CPHE

Dr Catherine Swann

Technical Lead

Chris Carmona

Analyst

Dr Lesley Owen

Analyst

Clare Wohlgemuth

Analyst

Dr Alastair Fischer

Health Economics Adviser

External contractors

External reviewers: effectiveness reviews

Review 1: 'A review of the effectiveness of interventions, approaches and models at individual, community and population level that are aimed at changing health outcomes through changing knowledge, attitudes or behaviour', carried out by the Cancer Care Research Centre, University of Stirling. The principal authors were: Ruth Jepson, Fiona Harris, Steve MacGillivray (University of Abertay), Nora Kearney and Neneh Rowa-Dewar.

Review 2: 'Review of the effectiveness of road-safety and pro-environmental interventions', carried out by the Institute for Social Marketing, University of Stirling. The principal authors were: Martine Stead, Laura McDermott, Paul Broughton, Kathryn Angus and Gerard Hastings.

Review 3: 'Resilience, coping and salutogenic approaches to maintaining and generating health: a review', carried out by the Cardiff Institute of Society Health and Ethics (CISHE), Cardiff University. The principal authors were: Emily Harrop, Samia Addis, Eva Elliott and Gareth Williams.

Review 4: 'A review of the use of the health belief model (HBM), the theory of reasoned action (TRA), the theory of planned behaviour (TPB), and the trans-theoretical model (TTM) to study and predict health-related behaviour change', carried out by The School of Pharmacy, University of London. The principal authors were: Professor David Taylor, Professor Michael Bury, Dr Natasha Campling, Dr Sarah Carter, Dr Sara Garfied, Dr Jenny Newbould and Dr Tim Rennie.

Review 5: 'The influence of social and cultural context on the effectiveness of health behaviour change interventions in relation to diet, exercise and smoking cessation' carried out by The School of Pharmacy, University of London. The principal authors were: Professor David Taylor, Professor Michael Bury, Dr Natasha Campling, Dr Sarah Carter, Dr Sara Garfied, Dr Jenny Newbould and Dr Tim Rennie.

Review 6: 'Social Marketing: a review', carried out by the Institute for Social Marketing, University of Stirling. The principal authors were: Martine Stead, Laura McDermott, Kathryn Angus and Gerard Hastings.

External reviewer: expert report

'Evidence for the effect on inequalities in health of interventions designed to change behaviour'. The author was Professor Mildred Blaxter (Chair of the PDG).

External reviewers: economic appraisal

Economic analysis: 'The cost-effectiveness of behaviour change interventions designed to reduce coronary heart disease: A thorough review of existing literature'; and 'The cost-effectiveness of population level interventions to lower cholesterol and prevent coronary heart disease: extrapolation and modelling results on promoting healthy eating habits from Norway to the UK'. This is the final phase two report for a project entitled 'Health economic analysis of prevention and intervention approaches to reducing incidence of coronary heart disease'. This was carried out by the Health Economics Research Group, Brunel University. The authors were: Julia Fox-Rushby, Gethin Griffith, Elli Vitsou and Martin Buxton.

Fieldwork

The fieldwork was carried out by Dr Foster Intelligence.

Appendix B: summary of the methods used to develop this guidance

Introduction

The reports of the reviews and economic appraisal include full details of the methods used to select the evidence (including search strategies), assess its quality and summarise it.

The minutes of the PDG meetings provide further detail about the Group's interpretation of the evidence and development of the recommendations.

All supporting documents are listed in appendix E and are available from the NICE website at: www.nice.org.uk/PH006

The guidance development process

The stages of the guidance development process are outlined in the box below:

1. Draft scope
2. Stakeholder meeting
3. Stakeholder comments
4. Final scope and responses published on website
5. Reviews and cost-effectiveness modelling
6. Synopsis report of the evidence (executive summaries and evidence tables) circulated to stakeholders for comment
7. Comments and additional material submitted by stakeholders
8. Review of additional material submitted by stakeholders (screened against inclusion criteria used in reviews)
9. Synopsis, full reviews, supplementary reviews and economic modelling submitted to the PDG
10. The PDG produces draft recommendations
11. Draft recommendations published on website for comment by stakeholders and for field testing
12. The PDG amends recommendations
13. Responses to comments published on website
14. Final guidance published on website

Key questions

The key questions were established as part of the scope. Initially they formed the starting point for the reviews of evidence and facilitated the development of recommendations by the PDG. The overarching question was: What are the most appropriate generic and specific interventions to support attitude and behaviour change at population and community levels? The subsidiary questions were:

1. What is the aim/objective of the intervention?
2. How does the content of the intervention influence effectiveness?

3. How does the way that the intervention is carried out influence effectiveness?
4. Does effectiveness depend on the job title/position of the deliverer (leader)? What are the significant features of an effective deliverer (leader)?
5. Does the site/setting of delivery of the intervention influence effectiveness?
6. Does the intensity (or length) of the intervention influence effectiveness/duration of effect?
7. Does the effectiveness of the intervention vary with different characteristics within the target population such as age, sex, class and ethnicity?
8. How much does the intervention cost (in terms of money, people and time)? What evidence is there on cost effectiveness?
9. Implementation: what are the barriers to implementing effective interventions?

These questions were refined further in relation to the topic of each review (see reviews for further details).

Reviewing the evidence of effectiveness

Six reviews of the evidence, one cost-effectiveness review and one economic modelling report were conducted. In addition, a number of important theoretical and methodological principles were taken into account.

The empirical evidence about behaviour change is very varied and methodologically diverse. Areas of focus can include one or more of the following:

- the individual, including the psychological processes affecting individuals
- social factors

- large-scale policy and legislative arrangements
- empirical investigations and observations
- propositional and modelling approaches.

Identifying the evidence

It is not always appropriate – or even possible – to carry out controlled trials or gather experimental evidence for public health interventions, including those covering legislation or policy. The search process initially followed standard NICE processes. However, as relatively little evidence on behaviour change addresses effectiveness or cost effectiveness, the review of the literature was extended to cover theoretical, descriptive and empirical studies of a type not normally reviewed for NICE guidance.

The goal of the primary studies varied and included efficacy, effectiveness, the theoretical elegance of models, implementation and programme evaluation. Some studies included all or some of these elements. The economic modelling for this guidance reflected the state of the literature.

There are few evidenced-based reviews on the effect of behaviour change interventions on social and health inequalities. There is evidence that the uptake of interventions or response to health education messages differs by social circumstances, and this has historically, widened the health inequalities gap. Evidence about interventions intended to narrow the health inequalities gap had to be drawn from the outcomes and methods described in other sorts of literature.

Databases were searched to identify the evidence relevant for each review. Since very different types of evidence were being gathered for each review, no common core set of databases was searched.

Further details of the databases, search terms and strategies used are included in the individual review reports.

Selection criteria

Inclusion and exclusion criteria for each review varied and details for each review can be found at www.nice.org.uk/PH006.

Summary of reviews

- Review 1 included systematic reviews and meta-analyses which focused on public health, health promotion or primary care-led interventions which contained an educational or behavioural component.
- Review 2 (part one) included reviews of intervention studies that evaluated the effectiveness of road safety interventions. Part two included reviews of intervention studies that evaluated the effectiveness of 'pro-environmental behaviour'.
- Review 3 (part one) included reviews that provided an overview of conceptual, theoretical or research issues in relation to resilience, coping and salutogenesis. It also included reviews of interventions explicitly linked to one of these theories. Part two included reviews of empirical evidence on positive adaptation in conditions of socio-structural adversity.
- Review 4 included reviews of four behaviour change models.
- Review 5 included reviews of empirical data on the effectiveness of interventions designed to change knowledge, attitude, intention and behaviour with respect to smoking, physical activity and healthy eating. Specific attention was focused on whether or not effectiveness was influenced by the individual's position in the life course, the intervention's mode of delivery or the social and cultural context.
- Review 6 included reports on the strategies used by marketeers to influence low-income consumers and any evidence of effectiveness.

Quality appraisal

Papers included in the reviews and additional empirical and theoretical data were assessed where appropriate for methodological rigour and quality using

the NICE methodology checklist. This is set out in the NICE technical manual 'Methods for development of NICE public health guidance' (see appendix E). Each study or paper was described by study type and graded (++, +, -) to reflect the risk of potential bias arising from its design and execution.

Study type

- Meta-analyses, systematic reviews of randomised controlled trials (RCTs) or RCTs (including cluster RCTs).
- Systematic reviews of, or individual, non-randomised controlled trials, case-control studies, cohort studies, controlled before-and-after (CBA) studies, interrupted time series (ITS) studies, correlation studies.
- Non-analytical studies (for example, case reports, case series).
- Expert opinion, formal consensus, theoretical articles.

Study quality

- ++ All or most of the checklist criteria have been fulfilled. Where they have not been fulfilled the conclusions are thought very unlikely to alter.
- + Some of the checklist criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions.
- Few or no checklist criteria have been fulfilled. The conclusions of the study are thought likely or very likely to alter.

The studies or papers were also assessed for their applicability to the UK where this was possible and the evidence statements were graded as follows:

- A Relevant – review makes direct reference to a UK population.
- B Probably relevant – review from outside UK but most likely equally applicable to UK settings.

- C Possibly relevant – review from outside UK and needs interpreting with caution for a UK setting.
- D Not relevant – review is from outside UK and is not relevant to a UK setting.

Summarising the evidence and making evidence statements

The review data were summarised in evidence tables (see full reviews). The findings from the reviews were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements reflect the strength (quantity, type and quality) of evidence and its applicability to the populations and settings in the scope.

Economic appraisal

The economic appraisal consisted of a review of economic evaluations and a model of cost effectiveness.

Review of economic evaluations

A systematic search of Medline, Embase, NHS EED, OHE HEED, NCCHTA, CEA Registry (Harvard University) was undertaken in June 2006, using a specified set of search terms, as well as inclusion and exclusion criteria. Following a review of 4122 abstracts and 225 papers, 26 papers were retained for full review, using a standard set of piloted questions. The data extracted included: background, population characteristics, interventions and alternatives, main features and findings and three sets of quality review criteria.

Cost-effectiveness analysis

An economic model was constructed to incorporate data from the reviews of effectiveness and cost effectiveness. The results are reported in: 'The cost-effectiveness of population level interventions to lower cholesterol and prevent coronary heart disease: extrapolation and modelling results on promoting

healthy eating habits from Norway to the UK'. They are both available on the NICE website at: www.nice.org.uk/PH006

Fieldwork

Fieldwork was carried out to evaluate the relevance and usefulness of NICE guidance and the feasibility of implementation. It was conducted with policy makers, commissioners, service providers and practitioners whose work involves changing people's health behaviour. They included those working in local and national government, the NHS and in charitable organisations.

The fieldwork comprised:

- Qualitative interviews carried out by Dr Foster Intelligence with 97 individuals, either in small groups or individually, across 30 sites. Participants included: representatives from the DH, other government departments and arm's length bodies; directors of public health in PCTs and strategic health authorities; public health advisers, health promotion staff and NHS practitioners (including GPs, practice nurses, community midwives, health visitors and health advisers); community-based school nurses; health trainers; and commissioners, service providers and practitioners working in local and national charities.

The fieldwork was conducted in London, Greater Manchester and the West Midlands to ensure there was ample geographical coverage. Grid analysis was used to determine common ground and differences of opinion.

The main issues arising from the fieldwork are set out in appendix C under 'Fieldwork findings'. The full fieldwork report is available on the NICE website: www.nice.org.uk/PH006

How the PDG formulated the recommendations

At its meetings held between July 2006 and February 2007, the PDG considered the evidence of effectiveness and cost effectiveness and theoretical and methodological evidence. Initially, discussions focused on the

evidence outlined in the reviews (see appendix B). The PDG also considered evidence on cost effectiveness, evidence from fieldwork, additional review material and a range of theoretical and methodological approaches (see appendix C).

In addition, at its meeting in May 2007 it considered comments from stakeholders and the results from fieldwork to determine:

- whether there was sufficient evidence (in terms of quantity, quality and applicability) to form a judgement
- whether, on balance, the evidence demonstrates that the intervention is effective or ineffective, or whether it is equivocal
- where there is an effect, the typical size of effect.

The PDG developed draft recommendations through informal consensus, based on the theoretical ideas that informed its view of behaviour, and the degree to which the available effectiveness evidence could support these ideas.

The draft guidance, including the recommendations, was released for consultation in April 2007. The guidance was signed off by the NICE Guidance Executive in September 2007.

Appendix C: the evidence

This appendix sets out a summary of the key behaviour change theories (empirical, theoretical and methodological) and other, additional evidence used to inform the recommendations. It also sets out a brief summary of findings from the economic appraisal and the fieldwork.

The reviews, economic appraisal and fieldwork report are available on the NICE website (www.nice.org.uk/PH006).

Key theories

The reviews were unable to capture all material related to behaviour change. This is because the evidence is broad, the methods used are diverse and the assumptions made about science, knowledge and explanation vary considerably. Some evidence focuses on particular components of human actions, much is theoretical, and some consists of models of human behaviour (see also appendix B). The PDG has also, therefore, drawn on a range of theoretical and methodological evidence. This evidence is briefly outlined below.

Resilience and coping: Antonovsky (1985, 1987) and Lazarus (1976, 1985; Lazarus and Folkman 1984)

Antonovsky argued that there are ‘health-giving’ or ‘health-generating’ factors in many situations. These ‘salutogenic’ factors can help people withstand or respond positively to stressors, crises or difficulties. They help to protect against vulnerability and disease and may help maintain good mental and physical health. Lazarus argued that people develop habitual ways of coping with life. However, although they may be highly effective from the individual’s point of view, some coping mechanisms (like smoking or excessive alcohol consumption) may damage their health and the health of others. Behaviour change and readiness to change behaviour takes place in this context.

'Habitus': Bourdieu (1977)

Bourdieu argued that many of the things that people do and believe are so familiar and habitual that they go largely unnoticed (because they are part of their 'habitus'). This makes changing them very difficult.

Social capital (Bourdieu 1986; Putnam 2000; Morgan and Swann 2004)

Social capital is commonly defined as those features of a society, such as networks, social trust and cohesion, which facilitate cooperation among people for mutual benefit. It was of interest because of the way these factors might influence health behaviours and people's ability to change.

Society: Giddens (1979, 1982, 1984)

Giddens argued that society was the product of interaction between individual human behaviour and the social structure. He argued that the human actions or agency produce societal patterns. The patterns repeat themselves to such a degree that structures emerge. Although those structures change, sometimes gradually, sometimes rapidly, individuals are aware of them and orient their actions in line with them (and are constrained by them).

The Theory of Planned Behaviour: (Ajzen 1991) and Bandura's construct of self-efficacy (1997)

The Theory of Planned Behaviour (TPB) is the most widely applied model of beliefs, attitudes and intentions that precede action (Ajzen 2001; Conner and Sparks 2005). TPB proposes that intention is the main determinant of action and is predicted by attitude, subjective norms and perceived behavioural control (PBC). PBC is a person's perception of whether or not they can control their actions and is closely related to Bandura's construct of self-efficacy (1997). Both PBC and self-efficacy are likely to bolster intentions and sustain action because people are more likely to attempt actions that are controllable and easy to perform.

Additional evidence

The PDG drew on other sources for a general understanding of wider public health issues. These included:

The former Health Development Agency's evidence base at:

www.nice.org.uk/page.aspx?o=hda.publications

Conner M, Norman P (2005) editors. Predicting health behaviour: research and practice with social cognition models. Maidenhead: Open University Press.

Cost-effectiveness evidence

The health economic analysis compared and contrasted the cost-effectiveness of behaviour change interventions aimed at reducing coronary heart disease (CHD) and delivered across the life course. Two phases were completed. The first involved a review of the cost-effectiveness of interventions designed to promote healthier lifestyles and to reduce the risk of developing CHD. In the second phase, a model was developed to determine the cost effectiveness of a population-based behaviour change intervention.

Phase one: comparing the cost-effectiveness of behaviour change strategies to reduce the risk of CHD

Many interventions aimed at tackling multiple risk factors fell into the 'likely to be very cost effective' category (£0–£20,000/per cost per quality adjusted life year [QALY]). These included a mix of population-level and individual interventions for adults over the age of 30.

Interventions aimed at changing the behaviour of adults with specific CHD risk factors (such as smoking, poor diet and low levels of physical activity) fell into the 'likely to be very cost effective' category. Two non-advisory interventions (labelling of foods containing trans-fatty acid and a population-based programme promoting a healthier diet) also fell into the 'likely to be very cost effective' group.

Significant gaps in the evidence were noted. There was little evidence on the cost-effectiveness of using behaviour change interventions with specified sub-groups (for example, 19–30 year olds, low-income groups, pregnant women, and particular ethnic or disadvantaged groups). The quality of evidence was also a cause for concern. For example, there was a lack of reliable data from which to extrapolate the long-term health outcomes. In addition, only a limited number of economic evaluations had been conducted alongside RCTs of behaviour change interventions to reduce CHD.

Phase two: modelling

In the second phase, a deterministic Markov chain simulation model was developed of a population-wide intervention to lower cholesterol and prevent CHD. The intervention was carried out in Norway in 1990. It included a mass media campaign and information delivered to a range of sectors including academia, the agricultural sector and schools. The model extrapolated the results to England and Wales in the first decade of 2000.

In the base case, an incremental cost-effectiveness ratio (ICER) of £87 per QALY (£116 per life year) was estimated. However, it was noted that the health benefits were underestimated, as this model only reported those related to CHD. Sensitivity analysis estimated that the intervention would be highly cost effective in a wide range of situations.

Fieldwork findings

Fieldwork aimed to test the relevance, usefulness and the feasibility of implementing the recommendations, and the findings were considered by the PDG in developing the final recommendations. The fieldwork was conducted with commissioners, service providers and practitioners involved in a wide range of services and activities relevant to health-related behaviour change. For details, see ‘Fieldwork on generic and specific interventions to support attitude and behaviour change at population and community levels’ at www.nice.org.uk/PH006.

Fieldwork participants were fairly positive about the recommendations and their potential to support attitude and behaviour change at the individual, community and population levels.

The recommendations were seen to reinforce aspects of a range of government policies and initiatives, including providing support to achieve certain public service agreement (PSA) targets (for example, to reduce teenage pregnancies and to reduce health inequalities).

While participants did not view the recommendations as offering a new approach, the principles they are based on have not been implemented universally. They indicated that wider and more systematic implementation would be achieved if there was:

- clarity about how the recommendations apply to people in different roles
- more information about how to implement some of the recommendations
- further information on how compliance with the recommendations will be determined.

Appendix D: gaps in the evidence

The PDG identified a number of gaps in the evidence related to behaviour change interventions and programmes, based on an assessment of the evidence. These gaps are set out below.

1. Evidence about the cost-effectiveness of behaviour change evaluations is lacking, in particular, in relation to specific sub-groups (for example, 19–30 year olds, low-income groups and particular ethnic and disadvantaged groups).
2. Evaluations of behaviour change interventions frequently fail to make a satisfactory link to health outcomes. Clear, consistent outcome measures need developing.
3. Evaluations of interventions based on specific psychological models tend not to relate the outcome measures to the model. As a result, it is difficult to assess the appropriateness of using the model as a means of describing behaviour change.
4. Few studies explicitly address the comparative effect that behaviour change interventions can have on health inequalities, particularly in relation to cultural differences.
5. There is a need for more information on the links between knowledge, attitudes and behaviour. Conflation between them should be avoided.
6. There is a lack of reliable data from which to extrapolate the long-term health outcomes of behaviour change interventions.

The Group made five recommendations for research. These are listed in section 5.

Appendix E: supporting documents

Supporting documents are available from the NICE website (www.nice.org.uk/PH006). These include the following.

- Reviews of effectiveness
 - Review 1: ‘A review of the effectiveness of interventions, approaches and models at individual, community and population level that are aimed at changing health outcomes through changing knowledge, attitudes or behaviour’
 - Review 2: ‘Review of the effectiveness of road-safety and pro-environmental interventions’
 - Review 3: ‘Resilience, coping and salutogenic approaches to maintaining and generating health: a review’
 - Review 4: ‘A review of the use of the health belief model (HBM), the theory of reasoned action (TRA), the theory of planned behaviour (TPB), and the trans-theoretical model (TTM) to study and predict health-related behaviour change’
 - Review 5: ‘The influence of social and cultural context on the effectiveness of health behaviour change interventions in relation to diet, exercise and smoking cessation’
 - Review 6: ‘Social Marketing: a review’.

- Expert report
 - ‘Evidence for the effect on inequalities in health of interventions designed to change behaviour’.

- Evidence briefings and other reviews and toolkits published by the former Health Development Agency (available on the NICE website at www.nice.org.uk/page.aspx?o=hda.publications)

- Economic analysis:
 - ‘The cost-effectiveness of behaviour change interventions designed to reduce coronary heart disease: a thorough review of existing literature’
 - ‘The cost-effectiveness of population level interventions to lower cholesterol and prevent coronary heart disease: extrapolation and modelling results on promoting healthy eating habits from Norway to the UK’.
- A quick reference guide (QRG) for professionals whose remit includes public health and for interested members of the public. This is also available from the NHS Response Line (0870 1555 455 – quote reference number N1230).

For information on how NICE public health guidance is developed, see:

- ‘Methods for development of NICE public health guidance’ available from: www.nice.org.uk/phmethods
- ‘The public health guidance development process: an overview for stakeholders including public health practitioners, policy makers and the public’ available from: www.nice.org.uk/phprocess