National Institute for Health and Clinical Excellence

PUBLIC HEALTH PROGRAMME DRAFT GUIDANCE

Front cover

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Generic and specific interventions to support attitude and behaviour change at population and community levels

NICE public health programme guidance 1

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.

The guidance is for NHS and non-NHS professionals who have a direct or indirect role in – and responsibility for – knowledge, attitude and behaviour change. This includes national policy makers and those working in local authorities and the community, voluntary and private sectors.

The Programme Development Group has considered a range of evidence and an economic analysis.

This document sets out the preliminary recommendations developed by the Group. It does not include all the sections that will form part of the final guidance. The Institute is now inviting comments from stakeholders (listed on the NICE website at: www.nice.org.uk).

Note that this document does not constitute the Institute's formal guidance on generic and specific interventions to support attitude and behaviour change at population and community levels.

The recommendations made in section 4 are provisional and may change after consultation with stakeholders and fieldwork.

The process the Institute will follow after the consultation period (which includes fieldwork) is summarised below. For further details, see 'The public health guidance development process: an overview for stakeholders including public health practitioners, policy makers and the public' (this document is available on the Institute's website at: www.nice.org.uk/phprocess).

- The Group will meet again to consider the consultation comments, the fieldwork reports and the stakeholder evidence.
- After that meeting, the Group will produce a second draft of the guidance.
- The draft guidance goes to the NICE Guidance Executive for final sign off.

The key dates are:
Closing date for comments: 1 May 2007
Next Group meeting: 30–31 May 2007.

Details of membership of the Programme Development Group are given in appendix C, and key supporting documents used in the preparation of this document are listed in appendix E.

Contents

1 Key priorities

This section will be completed in the final document.

2 Public health need and practice

Behaviour change involves both individual and social factors. Some major causes of mortality and morbidity are associated with people's behaviour including, for example, diseases linked to smoking, alcohol, lack of exercise and obesity. Interventions which impact on behaviour have enormous potential to change these patterns of disease. Health-related behaviour results from individual choices, but these choices are influenced by the social structures and the social context of people's lives. Together these factors affect people's ability to make positive changes to their behaviour.

Behaviour change is, therefore, very complex and difficult to achieve, both for the individuals who want to change and for the public health professionals who want to help them.

Many models and theories have been used to explain and support knowledge, attitude and behaviour change. Interventions based on these models and theories have generally been used at three levels.

- Individual-level interventions target people directly, for example, in clinics or classes, in families or in one to one advice or information-giving sessions.
- Community-level interventions and programmes alter community-level structures or services, for example, by ensuring there are local shops offering fresh, affordable food, or by setting up healthy living centres or local regeneration schemes. (For the purposes of this guidance, communities are defined as social or family groups defined by networks, geographical location or another common factor.)
- Population-level interventions and programmes use legislation, national policies or whole-population campaigns (for example, mass media campaigns) to try to change people's behaviour.

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

This guidance considers effective strategies for intervening at the individual, community and population-levels to change people's knowledge, attitudes and behaviours in relation to their health. It also considers the opportunities for – and consequences of – intervening at key transition or turning points in the lives of the individual, community and population. In addition, it looks at strategies for reaching and working with disadvantaged groups.

3 Considerations

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

3.1 Human behaviour comprises both individual and social components. For the purposes of this guidance, behaviour is defined as 'actions that are the product of individual human agency or choice'. These choices produce structured patterns which can, in themselves, limit individual choice. The recommendations span the social, individual and group processes that lead to these behaviour patterns.

3.2 Behaviour change interventions and programmes may not be effective at the individual level if they are not delivered in conjunction with social, environmental and economic change. Policy makers, commissioners and service providers should consider and, where possible, tackle the social, environmental and economic factors that affect people's ability to change their behaviour, as well as individual factors that will facilitate change.

3.3 Attempts to change behaviour at community and population-level have not always lead to universal improvements in the population's health, because different groups react differently to behaviour change interventions. Behaviour change interventions need to be targeted at specific groups and tailored to meet their needs, to ensure they do not exacerbate health inequalities. They also need to take into account the fact that changing behaviour may not be a priority for the individuals being targeted.

3.4 Some health damaging and therefore apparently 'maladaptive' actions may serve a positive purpose in certain social and cultural contexts. For example, smoking may be one of the few sources of pleasure and relaxation for people in difficult and straightened circumstances. Therefore, any attempt to change behaviour must take account of the acceptability – culturally, socially and economically – of the intervention and its intended outcome.

3.5 It is important not to stereotype groups or individuals because of their health-related behaviours. The cultural acceptability of different forms of behaviour varies. In addition, sometimes basic needs, for example, for food and shelter, will override the importance of any attempts to change behaviour.

3.6 No intervention will exist in a vacuum and any unintended consequences need to be assessed.

3.7 The PDG has considered the links between knowledge, attitudes and behaviour, according to the various definitions outlined in the literature. It noted that the assumption that changing knowledge will automatically lead to changes in attitudes or behaviour is ill founded.

3.8 The same methods cannot be used to influence all types of behaviour impacting on health. This guidance identifies the broad principles that may be applied in local and other settings, as appropriate.

3.9 Allowing 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.

3.10 A range of social and environmental resources can help boost the resilience of otherwise vulnerable people, so helping to protect them against illness. Such resources include ‘social capital’, the trust and reciprocity that is built up through, for example, friendship and kin networks and which exists within communities.

3.11 Primary prevention of health-damaging behaviours is a priority. Consequently, the need to change adult behaviour may be less urgent than the need to improve the life chances of children and young people.

3.12 There is a gap between the theory and the empirical evidence in the literature about behaviour change. The primary research tends to focus on specific types of behaviour rather than general methods of changing behaviour. The psychological literature is extensive and provides a number of models of health behaviours and behaviour change. The PDG did not look at all these models in detail, but they may be the topic of a future public health programme published by NICE.

3.13 Government departments should work together to ensure macro-level policies do not inadvertently encourage behaviours that can damage people’s health. For example, this includes policies on taxation, licensing laws and the benefits system.

3.14 A large number of mechanisms could be used to influence behaviour but the evidence is variable. There is a lot of evidence on how to work effectively with individuals to change their behaviour. There is far less evidence on how policy can be used effectively. Generally, the evidence base on downstream interventions (aimed at individuals) is considerably larger than that on upstream interventions (policies and

other activities aimed at tackling the wider determinants of health).

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, community programmes, point of sale promotions and one to one advice. However, population-level interventions have the potential to bring about the greatest changes, if supported by government and implemented effectively. (An example of a successful population-level intervention is the legislation making it compulsory to wear seatbelts.)

3.15 The training requirements of those involved in helping to change people's behaviour (within both NHS and non-NHS settings) is an important priority. National training standards are needed.

3.16 There is a considerable amount of evidence showing that population-level interventions are an effective and cost effective way of changing behaviour. Even small degrees of change, over time, can result in significant improvements in population-level health. However, groups may respond differently to incentives and disincentives, or 'fear' messages.

This section will be completed for the final guidance document.

4 Recommendations

When writing the recommendations, the PDG (see appendix C) considered a range of evidence including the evidence of effectiveness and cost effectiveness. Note: this document does not constitute the Institute's formal guidance on this programme. The recommendations are preliminary and may change after consultation.

Appendix A lists details of the theoretical and methodological literature used to interpret the evidence, the evidence reviews and additional evidence.

The evidence reviews, other evidence, supporting evidence statements and the economic appraisal are available on the Institute's website at www.nice.org.uk

Recommendation 1

Who should take action?

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

What action should they take?

- Work in partnership with individuals, communities and populations to plan and implement interventions and programmes to change health-related behaviour. These should:
    - be based on a needs assessment or knowledge of the target audience
    - take account of the local context in which people live, especially the socio-economic and cultural context
    - be based on an explicit plan which sets out which behaviour is to be targeted and why, which interventions will be delivered, what the content of the intervention will be and which outcomes will be measured and how
    - develop – and build upon – people's existing assets, skills and abilities
    - target specific behaviours (for example, encourage people to eat five portions of fruit and vegetables a day, rather than simply instructing them to 'eat a healthier diet') and barriers to change (for example, lack of access to information or resources).

- Prioritise interventions and programmes that:
    - can be tailored to tackle individual beliefs, attitudes, intentions and knowledge associated with the target behaviour

  - can be consistently delivered and supported at more than one level (for example, locally by GPs and nationally by a media campaign) and across more than one setting (for example, in primary care and schools)
  - use key life stages or times when people are more likely to be open to change(such as pregnancy, entering or leaving school and entering or leaving work).

- Ensure that sufficient time and resources are set aside to evaluate effectiveness and cost effectiveness.

Recommendation 2

Who should take action?

Policy makers and commissioners working with communities, especially those working with disadvantaged and excluded groups.

What action should they take?

- Identify and attempt to remove social, financial and environmental barriers to change.

- Consider investing in interventions and programmes that identify and build on the strengths of individuals and communities and the relationships within those communities. These include interventions and programmes to:
  - promote parental skills and enhance child/carer relationships
  - improve self-efficacy
  - develop and support positive social networks and nurturing relationships (for example, extended kinship networks and other ties)
  - support organisations and institutions that offer opportunities for local participation in service planning and delivery, or in terms of leisure, voluntary and paid activities
  - promote resilience and build skills, relationships and self-esteem.

Recommendation 3

Who should take action?

Policy makers, commissioners, curricula developers and practitioners.

What action should they take?

- Clearly justify and scientifically evaluate any conceptual or psychological models that have been used to design and deliver an intervention.

Recommendation 4

Who should take action?

Policy makers, commissioners and practitioners working with disadvantaged and excluded communities.

What action should they take?

- Acknowledge that people who live in disadvantaged circumstances may make a rational decision to adopt behaviours that can lead to poor health by:
    - assessing the target population's need for an intervention
    - gathering information on the social and cultural context in relation to the target behaviours, to gain an understanding of why the target community has adopted them.
- Involve the target population in the development, evaluation and implementation of the intervention.
- Consider introducing structural improvements to help people who find it difficult to change behaviours which can have a poor effect on their health. Structural interventions could include changes to the physical environment.

Recommendation 5

Who should take action?

Commissioners and practitioners working with people who are motivated to change their health-related behaviour.

What action should they take?

- Provide interventions that:
    - aim to make it feasible for people to change their behaviour
    - enhance and develop people's skills to help them make positive changes
    - help and support individuals to plan in advance for situations where they might feel tempted to revert to behaviours which could damage their heath.

- Focus on the feasibility of change and its benefits.

Recommendation 6

Who should take action?

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

What action should they take?

- Ensure everyone who is involved in delivering interventions to change people's health-related behaviour receives appropriate training.

- Ensure appropriately trained professionals plan, deliver, implement and evaluate interventions and programmes aimed at changing people's health-related behaviours.

Recommendation 7

Who should take action?

Policy makers and commissioners whose work impacts on people's health-related behaviour.

What action should they take?

- Gather information about the context, needs and behaviours of the target population(s).

- Use this knowledge to deliver tailored, population-level policies, interventions and programmes aimed at changing health-related behaviours. These include:
    - fiscal and legislative interventions. for example, taxation and age restrictions on certain behaviours
    - national and local advertising and mass media campaigns
    - point of sale promotions and interventions.

- Ensure that population-level interventions are sustained over time, and are consistent with messages and interventions delivered at the individual and community-level.

5 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the DH in 'Standards for better health' issued in July 2004. The implementation of NICE public health guidance will help organisations meet the standards in the public health (seventh) domain in 'Standards for better health'. These include the core standards numbered C22 and C23 and the developmental standard D13. In addition, implementation of NICE public health guidance will help meet the health inequalities target as set out in 'The NHS in England: the operating framework for 2006/7' (DH 2006).

NICE has developed tools to help organisations implement this guidance. The tools will be available on our website (www.nice.org.uk/PHP001). For provisional details see below. (This section will be updated in the final guidance document.)

- Costing tools:
    - costing report to estimate the national savings and costs associated with implementation

  - costing template to estimate the local costs and savings involved.
- Other tools:
  - slides highlighting key messages for local discussion
  - optional: practical advice on how to implement the guidance and details of national initiatives that can provide support
  - audit criteria to monitor local practice.

6 Recommendations for research

This section will be completed in the final guidance document. More detail on the evidence gaps identified during the development of this guidance is provided in appendix B.

7 Updating the recommendations

This section will be completed in the final guidance document.

8 Related NICE guidance

Much of NICE guidance, both published and in development, is concerned with changing knowledge, attitudes and behaviours in order to tackle disease and illness. For a list of the relevant publications go to: www.nice.org.uk/guidance

Appendix A: the evidence

This appendix describes the empirical, theoretical and methodological evidence which the PDG considered in framing its recommendations.

In line with the standard NICE approach to collecting and synthesising evidence, six reviews were commissioned. However, as noted in appendix D, these reviews did not provide sufficient evidence to formulate recommendations. As a result, the PDG had to draw on a range of theoretical ideas and evidence to interpret the other evidence available to it. These theories are part of contemporary debate and controversy among social and behavioural scientists. These theories, along with the expert judgments of the PDG, were used in conjunction with corroborating evidence from the reviews to inform the recommendations. The theories are briefly outlined below followed by a list of the reviews of effectiveness and the additional evidence.

Key theories

- The PDG was influenced by the concept of resilience as conveyed by Antonovsky and Lazarus. In particular, Antonovsky. argued for a focus on the salutogenic aspects of the environments where people live. These aspects produce resilience, protect against vulnerability and lead to good health (rather than disease). Lazarus' ideas, specifically the notion that life is intrinsically stressful and that to be human is to cope routinely with those stressors, was also influential. Habitual ways of coping may be highly effective from the individual's point of view, but may damage health. The importance of understanding what health-related behaviour means to individuals has, therefore, also been a guiding principle.

  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.
  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.

- The PDG was influenced by Pierre Bourdieu's concepts of social capital and of habitus: the idea that individuals and communities can transmit from person to person or from generation to generation positive (and negative) skills, habits, attitudes, beliefs and behaviour. The PDG was also aware of a range of work that was influenced by Bourdieu's concept and the many other writers who have linked the idea of social capital to health.

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

- The PDG noted that it is important to specify two things in respect to any interventions which aim to change behaviour. First, Davidson and colleagues suggest it is important to be as specific as possible about the content of the intervention: what is actually done, to whom, in what context, and in what way. The literature is often very weak in this respect. Second, Pawson and Weiss suggest it is important to make explicit the underlying theories which help make explicit the key causal links between the actions which are undertaken and their outcomes It is here that the theories of change models and the models of realistic evaluation play a role.

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

Sage.
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.

- Antony Gidden's view of society, in which the interaction of human agency and social structure is seen as fundamental, influenced the PDG's thinking. The proposition that humans are more or less aware of social structure and orient their actions in line with it was also a significant factor in the PDG's recommendations.

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

- The importance of seeing health behaviour as dynamic led the PDG to consider the concept of the life course and the way that it can lead to an accumulation of potentially health-protecting or health-damaging phenomena. It also considered the degree to which health behaviour change is located in – and can only be understood with reference to – the life course.

  Graham H, Power C (2004) Childhood disadvantage and adult health: a lifecourse framework [online]. Available from: www.nice.org.uk/page.aspx?o=502707
  Hertzman C, McLean SA, Kohen DE et al. (2002) Early development in Vancouver: report of the community asset mapping project (CAMP). Vancouver: University of British Columbia. Available from: www.earlylearning.ubc.ca

Hertzman C, Wiens M (1996) Child development and long-term outcomes: a population health perspective and summary of successful interventions. Social Science and Medicine 43:1083–95.

Keating C, Hertzman DP (1999) Modernity's paradox. In: Keating C, Hertzman DP, editors. Developmental health and the wealth of nations. London: Guildford Press.

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.

Power C, Hertzman C (1997) Social and biological pathways linking early life and adult disease. In: Marmot MG, Wadsworth MEJ, editors. Fetal and early childhood environment: long-term health implications. British Medical Bulletin 53(1):210–21.

- Wider public health evidence base: the PDG also drew on other sources for a general understanding of wider public health issues. These included the former HDAs evidence base.
  http://www.nice.org.uk/page.aspx?o=hda.publications

Reviews of effectiveness

The six reviews of effectiveness are:

- 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’.

The reviews, including evidence statements, and the economic appraisal are available on the NICE website (www.nice.org.uk/page.aspx?o=395474).

Additional evidence

Blaxter M (2007) Evidence for the effect on inequalities in health of interventions designed to change behaviour. Paper prepared for the behaviour change Programme Development Group.

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

Gollwitzer PM, Sheeran P (2006) Implementation intentions and goal achievement: a meta-analysis of effects and processes. Advances in Experimental Social Psychology 38: 249–68.

Kroeze W, Werkman A, Brug J (2006) A systematic review of randomized trials on the effectiveness of computer-tailored education on physical activity and dietary behaviors. Annals of Behavioral Medicine 31: 205–23.

White M, Adams J, Heywood P. How and why do interventions that increase health overall widen inequalities within populations? Babones S (Ed.). From Equity to Health: International and Interdisciplinary Perspectives on the Link between Social Inequality and Human Health. Baltimore: Johns Hopkins Press (forthcoming).

White M. PETeR: a universal taxonomy for health interventions. Paper presented to the behaviour change Programme Development Group.

Cost-effectiveness evidence

Five reviews were commissioned to inform the development of this guidance. NICE decided not to undertake separate health economic reviews for each evidence review. Instead, the Institute compared and contrasted the cost-effectiveness of prevention, intervention and treatment strategies aimed at changing behaviour and delivered across the life course.

As a first step, the health economic analysis focused on prevention and intervention strategies aimed at reducing coronary heart disease (CHD). To date, two phases have been completed. The first involved a review of the evidence on the cost-effectiveness of interventions designed to promote healthier lifestyles and to reduce the risk of developing CHD. The second involved developing a model of the cost effectiveness of a population-based behaviour change intervention.

Phase one: comparing cost-effectiveness of behaviour change strategies

In the first phase, no relevant high quality UK studies were identified on the cost effectiveness of public interventions to reduce CHD. None of the papers reviewed provided evidence on child-focused health promotion programmes. 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 years [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 risk factors for CHD (such as smoking, poor diet and lack of physical activity) fell into the ‘likely to be very cost effective’ category. Two non-advisory interventions (food labelling with transfatty acid content and a population-based health promotion programme on eating a healthier diet) also fell into the ‘likely to be very cost-effective’ group.

Significant gaps in the evidence were noted. For example, 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, 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 of behaviour change interventions. Only a limited number of economic evaluations of behaviour change interventions to reduce CHD had been conducted alongside RCTs.

Phase two: modelling

In the second phase, a deterministic Markov cohort chain simulation model was developed to estimate the cost-effectiveness of a population-wide strategy (which included a mass media campaign and information delivered to a range of sectors including academia, the agricultural sector and schools), to lower cholesterol levels in England and Wales (compared to no intervention). The strategy was cost effective, in terms of QALYs.

In the base case, an incremental cost-effectiveness ratio (ICER) of £87 per QALY (£116 per life year) (ICERs NE-Q) was observed, with costs and effects discounted at 3.5%. When focusing on CHD, it was noted that the health benefits of the intervention were underestimated using this model. It is likely that the cost of the intervention was also underestimated. Using the full costs resulted in an ICER of £27,490. The largest impacts upon the base case ICER, in terms of increasing cost per QALY, were a reduction in the percentage of the population participating in the intervention and an increase in the costs of the intervention.

Appendix B: gaps in the evidence

The PDG identified a number of gaps in the evidence related to the programmes under examination based on an assessment of the evidence. These gaps are set out below.

1. Evidence relating to 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. Behaviour change interventions are frequently evaluated without a satisfactory link to health outcomes, and clear or consistent measures of outcome are under developed.

3. Evaluations of interventions based on specific psychological models of behaviour change tend not to measure outcomes in relation to that model. As a result, it is difficult to evaluate the appropriateness of the model as a means of describing behaviour change.

4. Few studies explicitly address the comparative effects of health inequalities on the outcomes of behaviour change interventions, particularly in relation to cultural differences.

5. In many studies knowledge, attitude and behaviour are conflated. While the links between them are recognised, it would be valuable to explore these elements separately.

6. There is a lack of reliable data from which to extrapolate the long-term health outcomes of behaviour change interventions.

Appendix C: 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, School of Population and Health Sciences, University of Newcastle

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 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

Professor Alastair Fischer

Health Economist Adviser

External contractors

External reviewers

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 School of Social Sciences, 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, Paul Broughton, Kathryn Angus and Gerard Hastings.

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.

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Appendix D: 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/page.aspx?o=BehaviourChangeMain

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 used by the PDG to interpret the evidence available to it.

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

- sociological factors
- large-scale policy and legislative arrangements
- empirical investigations and observations
- propositional 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 but, as the limitations of this approach became clear, wider and additional evidence was considered. It was not possible to consult with stakeholders on all the additional evidence during the first consultation on the evidence. However, this is now available for consultation on the NICE website.

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 that interventions to change behaviour can have 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 are included in the individual review reports.

Selection criteria

Inclusion and exclusion criteria for each review varied and details can be found at www.nice.org.uk/page.aspx?o=395474 However in general:

- 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 1) included reviews of intervention studies that evaluated the effectiveness of road safety interventions. Part 2 included reviews of intervention studies that evaluated the effectiveness of 'pro-environmental behaviour'

- Review 3 (part 1) 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 2 included reviews of empirical evidence on positive adaptation despite conditions of social-structural adversity.

- Review 4 included reviews of the use of the four models under review in health-related areas.

- 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 is influenced by the position in the life course, mode of delivery or 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

Included papers in the reviews were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in the NICE technical manual 'Methods for development of NICE public health guidance' (see appendix E). Additional material, some of which was empirical and some of which was theoretical, which the PDG considered pertinent was also assessed.

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. Data extraction included background data, 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'. 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''. They are available on the NICE website at: www.nice.org.uk/page.aspx?o=395474

Fieldwork

This section will be completed in the final document.

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. 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 PDG noted that the effectiveness of some interventions could vary according to the context in which they were delivered. For example, smoking cessation interventions, delivered as part of antenatal care, may have a different effect in an affluent area compared with a deprived area.

Appendix E: supporting documents

Supporting documents are available from the NICE website (www.nice.org.uk/page.aspx?o=BehaviourChangeMain). These include the following.

- Reviews and 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'.

- A wide range of theoretical and empirical evidence. For details see appendix A under 'Key theories'.

- 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'. 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'.

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