

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

PUBLIC HEALTH DRAFT GUIDANCE

Behaviour change

Introduction: scope and purpose of this draft guidance

What is this guidance about?

This guidance partially updates, but does not replace, [Behaviour change](#), NICE public health guidance 6 (2007). The scope for this guidance set out to address:

- behaviour-change techniques for individual-level interventions
- [‘choice architecture’ interventions](#).

The behaviours covered are: alcohol, diet, physical activity, sexual behaviour and smoking.

In the original guidance there was no lower age limit for the recommendations. The new guidance is aimed at people aged 16 and older. This is to take into account the fact that certain behaviours (such as sexual behaviour) are legal or prevalent among young people aged 16 and 17.

The recommendations cover policy and strategy, commissioning, planning, delivery, training and evaluation of individual-level behaviour-change interventions and programmes. They also cover maintenance of change and organisational and national support. No recommendations concerning [choice architecture interventions](#) were made (see [considerations](#) and [recommendations for research](#)).

This guidance does not cover:

- community or population-level interventions to change behaviour that are **not** based on choice architecture (these will be the subject of future guidance updates)
- any clinical and pharmacological methods of changing behaviour.

The recommendations in this guidance should be read in conjunction with existing NICE guidance unless explicitly stated otherwise. This includes NICE guidance on alcohol, diet, physical activity, sexual behaviour and smoking (see [Related NICE guidance](#)).

See [About this guidance](#) for details of how the guidance was developed and its current status.

Who is this guidance for?

The guidance is for: commissioners, managers, service providers and practitioners with public health as part of their remit working within local authorities, the NHS, and the wider public, private, voluntary and community sectors. It is particularly aimed at those who commission, design and deliver interventions to help people change their behaviour – or who encourage or support behaviour change as part of their role.

The guidance may also be of interest to researchers, individuals, groups or organisations wishing to work in partnership with health and social care and other service providers. In addition, it may be of interest to people who want to change their behaviour (for example, to stop smoking), their families and other members of the public.

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1 Draft recommendations

The Programme Development Group (PDG) considers that the recommended interventions and approaches are cost effective.

The evidence statements underpinning the recommendations are listed in [The evidence](#).

See the [NICE website](#) for the evidence reviews and economic modelling report.

For the research recommendations and gaps in research, see [recommendations for research](#) and [gaps in the evidence](#) respectively.

Background

The recommendations cover individual-level interventions and other approaches to change behaviour in relation to alcohol, diet, physical activity, smoking and sexual behaviour.

The absence in the recommendations of any activities that fall within the scope of this guidance is a result of a lack of evidence and should not be taken as a judgement on whether these interventions are effective or cost effective.

Behaviour-change techniques

Behaviour-change techniques, as described in principle 4 of [Behaviour change at population, community and individual levels](#) (NICE public health guidance 6) are recommended when implementing the following recommendations.

Whose health will benefit?

Everyone aged 16 or older who smokes, or whose eating and physical activity patterns, sexual practices or alcohol use is likely to adversely affect their own or other peoples' health and wellbeing.

Recommendation 1 Developing policy and strategy

Who should take action?

- Local government policy makers.
- Commissioners of health and local authority services, including clinical commissioning groups.
- Health and wellbeing boards.
- Individuals, groups or organisations wishing to work in partnership with health and social care service providers.

What action should they take?

- Develop a commissioning strategy for an evidence-based programme of population, community, organisational and individual-level behaviour-change interventions (for example, see NICE guidance on [alcohol](#) and [obesity](#)).
- Ensure the strategy meets local needs, identified through joint strategic needs assessments (JSNAs) and other local data.
- Identify the behaviours that the programme will address, bearing in mind that some programmes can address more than 1 behaviour (for example, alcohol and smoking).
- Strategies and policy should aim to improve everyone's health. Ensure the content, scale and intensity of each intervention is proportionate to the level of social, economic or environmental disadvantage someone faces and the support they need.
- Identify a named strategic local authority lead, such as an elected or non-elected member of cabinet or director of public health, to address specific behaviours, such as smoking and physical activity.

Recommendation 2 Commissioning behaviour-change programmes: principles

Who should take action?

- Local government policy makers.
- Commissioners of health and local authority services, including clinical commissioning groups.
- Health and wellbeing boards.
- Individuals, groups or organisations wishing to work in partnership with health and social care service providers.

What action should they take?

- Only commission behaviour-change interventions and programmes that meet NICE recommendations on:
 - Planning (see recommendation 5) and design (see recommendation 6; also see principle 1 in [Behaviour change at population, community and individual levels](#), NICE public health guidance 6)
 - Delivery (see recommendations 7–11)
 - Training (see recommendation 12; also see principle 3 in [Behaviour change at population, community and individual levels](#), NICE public health guidance 6)
 - Evaluation (see recommendations 3 and 17; also see principles 7 and 8 in [Behaviour change at population, community and individual levels](#), NICE public health guidance 6).
- Use health equity audit to ensure health inequalities will not increase, and if possible will decrease, as a result of the local behaviour-change programme (see [health equity audit](#)).
- Ensure behaviour-change interventions aim to both initiate and maintain any change. They should also include strategies to address relapse and recognise that this is common.

- Include routine data collection on behaviours that affect health in service specifications for behaviour-change programmes. (Examples of such behaviours include smoking and alcohol consumption.) Data should be made available to commissioners and local and national organisations to aid monitoring of service processes and outcomes.
- Commission behaviour-change interventions that are proven to be effective over the long term (more than 1 year), as well as the short (6–12 weeks) and medium term (between 12 weeks and 1 year). (See recommendation 3 and [NICE guidance](#) on alcohol, diet, physical activity, sexual behaviour and smoking.)

Recommendation 3 Commissioning behaviour-change programmes: quality and effectiveness

Who should take action?

- Local government policy makers.
- Commissioners of health and local authority services including clinical commissioning groups.
- Health and wellbeing boards.
- Individuals, groups or organisations wishing to work in partnership with health and social care service providers.

What action should they take?

- Find out whether existing behaviour-change interventions and programmes are effective and cost effective, are using proven techniques and are applying evidence-based principles. (See [Behaviour change at population, community and individual levels](#), NICE public health guidance 6).
- Ensure time and funds are allocated for independent evaluation of the short-, medium- and long-term outcomes of any behaviour-change service.
- Carry out a quality assurance check, rather than a full evaluation, if an intervention has already been shown to be effective in changing behaviour in the long term.

- Ensure a quality assurance process is in place to assess whether the intervention was delivered as planned ([intervention fidelity](#)), maximises health outcomes and reduces health inequalities. Record all information on processes and outcomes in a form that is open to interrogation, if necessary (for example, on a secure database).
- **Only** commission an intervention for which there is no evidence of effectiveness if it is accompanied by an adequately powered and controlled evaluation that measures relevant outcomes (see recommendation 17).
- Disinvest in interventions or programmes if there is good evidence to suggest they are not effective.

Recommendation 4 Providing organisational support for behaviour-change interventions and programmes

Who should take action?

- Commissioners of health and local authority services, including clinical commissioning groups.
- Organisations whose employees deliver behaviour-change interventions.

What action should they take?

- Directors should ensure policies and strategies are in place to provide behaviour-change support for staff, as well as clients, involved in behaviour-change interventions or programmes. This could take the form of behaviour-change services. Or it could involve creating environments that support health-promoting behaviour (for examples, see NICE guidance on [smoking](#) and [physical activity](#)).
- Managers should review job descriptions to ensure they include behaviour-change knowledge and skills (competencies), if they are relevant to a person's job (see recommendation 7).
- Employers should make staff aware of the importance of being supportive, motivating, and empathetic with clients (see recommendation 15).

- Directors and managers should encourage staff to receive behaviour-change training related to their roles and responsibilities (see recommendation 7). They should also be offered ongoing professional development on behaviour-change theories and methods.
- Managers, mentors and supervisors should support staff who are delivering behaviour-change interventions. This includes providing feedback on practice, encouraging them to be aware of their 'duty of care,' and making them aware of the likely perceptions and expectations of those taking part in these interventions and programmes.
- Where possible, employers should adapt existing electronic systems to collect data on the behaviours of those involved in a behaviour-change intervention or programme to support monitoring and evaluation.

Recommendation 5 Planning behaviour-change interventions and programmes

Who should take action?

- Commissioners.
- Providers of behaviour-change programmes.
- Intervention designers.
- Service developers.

What action should they take?

- Work together and with other key stakeholders (for example, communities and researchers) to develop ([co-produce](#)) behaviour-change interventions and programmes that are acceptable, feasible and sustainable. This should also reduce duplication.
- Take into account the local social and cultural contexts to ensure equitable access for everyone who needs help and make best use of existing resources and skills.

- Base behaviour-change interventions and programmes on existing written, evidence-based guidelines (see recommendation 6).
- Take into account:
 - the objectives of the intervention or programme
 - the target population and their characteristics, such as socioeconomic status
 - whether there is a need to offer tailored interventions for specific subgroups (for example, see [Preventing type 2 diabetes: risk identification and interventions for individuals at high risk](#), NICE public health guidance 38)
 - intervention characteristics: the content, mode of delivery, intensity and duration of the intervention, and who will deliver it, where and when
 - availability of, and access to services once the intervention has finished
 - follow-up and support to maintain the new behaviour
 - quality of the behavioural support
 - plans to monitor and measure [intervention fidelity](#).

Recommendation 6 Designing behaviour-change interventions and programmes

Who should take action?

- Commissioners.
- Intervention designers.
- Service developers.
- Researchers (including academics and practitioners) developing, delivering and evaluating behaviour-change interventions.

What action should they take?

- Design programmes that:
 - are evidence-based
 - meet agreed objectives

- identify the core skills, knowledge and experience (competencies) needed to deliver the programme (including for the specific behaviour-change techniques used)
 - provide details of the training needed (including learning outcomes) for practitioners
 - include a monitoring and evaluation plan.
- Describe in detail the principles on which the behaviour-change intervention or programme is based (the intervention protocol). Put these details in a manual. This should include:
 - clearly stated objectives and what the intervention will deliver
 - the evidence base used (such as from NICE guidance on any specific public health topic)
 - the behaviour-change techniques used (ideally, based on a published, evidence-based [taxonomy](#))
 - an explanation of how the intervention works ([mechanism of action](#)).
- Manuals should also include a detailed description of the intervention or programme as follows:
 - the resources, setting/context, activities, processes and outcomes (including a graphical description of the relationship between these variables, such as a logic model)
 - intervention characteristics (see recommendation 5)
 - a clear definition of the behaviour-change techniques used so that each component can be replicated.
 - details on how to tailor the intervention to individual needs
 - plans to address long-term maintenance of behaviour change and relapse
 - implementation details: who will deliver what, to whom, when and how.
- Make the manual publicly available, for example, on a website.

Recommendation 7 Delivery: roles and responsibilities

Who should take action?

- NHS and social care professionals.
- Community and voluntary sector staff.
- All staff who have contact with the general public.

What action should they take?

- All staff in contact with the general public should, if they wish, be trained to deliver a [very brief intervention](#). The aim is to train them to encourage others to change behaviours that may be damaging to health.
- All staff who regularly come into contact with people whose current behaviours, ethnicity or family history could put their health and wellbeing at risk should be offered the opportunity for training to deliver a [brief intervention](#).
- All staff dealing with the general public and behaviour-change service providers have the potential to provide medium-intensity interventions ([extended brief interventions](#)) for people they regularly see who:
 - are involved in risky behaviours (for example higher risk drinkers, see [Alcohol: recommended weekly limits](#))
 - have a number of health problems
 - have been assessed as at increased or higher risk of harm
 - have been successfully helping themselves to change but need more support to maintain that change
 - have found it difficult to change or have not benefited from a [very brief](#) or [brief intervention](#).
- Behaviour change specialists and treatment service providers should provide [high-intensity interventions](#) for people they regularly work with who:
 - have been assessed as being at high risk of harm to their health and wellbeing (for example, adults with a BMI more than 40) **and/or**

- have a serious medical condition that needs specialist advice and monitoring (for example, people with type 2 diabetes or cardiovascular disease) **and/or**
- have not benefited from a medium-intensity intervention.

Recommendation 8 Delivery: client assessment

Who should take action?

- Providers of behaviour-change programmes and interventions.
- Healthcare professionals.
- Intervention designers.

What action should they take?

- Ensure the person carrying out a client assessment has the knowledge, and skills (competencies) needed to assess behaviours and individual needs.
- Trained practitioners should assess the person's behaviour using, if available, a validated assessment tool appropriate for the specific population or setting. For example, different alcohol screening tools are used in prisons and in accident and emergency departments. (See recommendation 7.)
- If the assessment addresses only whether a behaviour is present, refer the person to a service that will provide an in-depth assessment of their needs, or tell them where they can get help.
- In-depth assessments should determine what help the person needs to change their behaviour. This includes:
 - their physical and psychological capability to make change
 - the context in which they live and work (that is, their physical, economic and social environment)
 - how motivated they are to change (if many behaviours need to be changed, assess which one – or ones – the person is

most motivated to tackle; see [Capability, opportunities and motivation](#)).

- Before starting an intervention, assess the person's physical and mental health in relation to the behaviour and any behaviour-change actions needed. For example, ensure the level and type of physical activity recommended relates to the state of their physical health. (As an example, see NICE guidance on [Weight management before, during and after pregnancy](#).)

Recommendation 9 Delivery: meeting individual need

Who should take action?

- Commissioners.
- Providers of behaviour-change programmes.
- Intervention designers.

What action should they take?

- Tailor interventions to meet different participants' needs (that is, tailor them to their [capability, opportunities and motivation](#) to change). This includes addressing the specific needs of people with any type of disability.
- Ensure the intensity of the intervention matches the person's need for support to change their behaviour (see recommendation 7).
- Recognise the times when people may be more open to change, such as when recovering from a behaviour-related condition (for example, following diagnosis of cardiovascular disease), or when becoming a parent.
- Discuss what the likely impact on their health will be if they do make changes.
- Support people to maintain the change on a daily basis as part of their new routine (see recommendation 11).

- For specific behaviours, look at existing [NICE public health guidance](#) on alcohol, diet, physical activity, smoking and sexual behaviour.

Recommendation 10 Behaviour-change techniques

Who should take action?

- Providers of behaviour-change programmes.
- Intervention designers.
- Researchers.

What action should they take?

- Behaviour-change interventions should include the following techniques:
 - [Goals and planning](#): work with client to
 1. set behaviour and outcome goals
 2. develop action plans
 3. develop coping plans aimed to prevent relapses
 4. prompt review of behavioural goals to consider achievement of outcomes and further goals and plans.
 - [Feedback and monitoring](#): encourage
 1. self-monitoring of behaviour and its outcomes **and**
 2. provide feedback on behaviour and its outcomes.
 - [Social support](#): if appropriate advise on, and arrange for, friends, relatives, colleagues or 'buddies' to provide practical help, emotional support, praise or reward.
- Do not necessarily limit an intervention to these behaviour-change techniques. Make sure all of them are clearly defined. Provide a rationale for their inclusion in the intervention.

Recommendation 11 Maintenance of behaviour change

Who should take action?

- Providers of behaviour-change programmes.
- Intervention designers.
- Researchers.

What action should they take?

- To maintain behaviour-change in the long term (more than 1 year):
 - make sure the person receives long-term [monitoring and feedback](#) so that they receive help if they show any sign of relapse
 - ensure they have well-rehearsed [action plans](#) that can easily be put into practice if this happens
 - ensure the person has made the physical (environmental) changes and has the [social support](#) needed
 - help them develop routines that support the new behaviour (note, people who make least change to everyday practices and routines are likely to be the most successful).

Recommendation 12 Training: commissioning**Who should take action?**

- Local government policy makers.
- Commissioners of health and local authority services, including clinical commissioning groups.
- Health and wellbeing boards.
- Individuals, groups or organisations wishing to work in partnership with health and social care service providers.

What action should they take?

- Include a competencies (knowledge and skills) framework for training staff to meet the service specification for a behaviour-change programme. This should:
 - cover various activities, from a [very brief intervention](#) offered when the opportunity arises to [extended interventions](#)
 - address equity issues
 - provide the latest available evidence of effectiveness and detail on why and how an intervention works ([mechanisms of action](#)).

- Ensure training programmes on behaviour-change provide:
 - evidence-based content (see recommendation 10)
 - evidence-based training methods
 - trainers with proven skills, knowledge and experience ([competencies](#)) in the particular area (see recommendation 15)
 - monitoring using a relevant competencies framework or assessment.
- Ensure refresher training is available to maintain the quality of delivery of behaviour-change interventions.
- Ensure training programmes consider the setting, participants' characteristics (such as background) and whether behaviour change is part of the deliver's main role, integral to their role but not the main focus, or an additional task (see recommendation 7).
- Ensure training is evaluated (see recommendations 14 and 15)

Recommendation 13 General health and social care training: including behaviour-change within relevant curricula

Who should take action?

- Royal colleges, faculties and schools that train all health and social care professionals.
- Health Education England.

What action should they take?

- Integrate behaviour-change knowledge, skills and delivery techniques as a formal element in initial training, work placements and ongoing continuous professional development for all those who deliver health and social care services.
- Ensure all health and social care professionals can, as a minimum, deliver a [very brief intervention](#). (Training modules can be found online, for

example, see the National Centre for Smoking Cessation and Training's [very brief advice training module](#).)

Recommendation 14 Training for behaviour-change practitioners: general principles

Who should take action?

Providers of behaviour-change training.

What action should they take?

- Ensure behaviour-change practitioners:
 - are aware of factors that may affect behaviour-change (see recommendation 9)
 - are aware of behaviours that adversely affect people's health and the benefits of prevention and management
 - can address health inequalities by tailoring interventions to people's specific needs, including their cultural, social and economic needs
 - recognise specific behaviour-change techniques, and know why and how an intervention works ([mechanisms of action](#))
 - understand how to access support services (for example, how people can get help to change their behaviour as a result of hospitalisation or after a routine GP appointment)
 - know where and how to refer people to support services following an intervention, and have a working knowledge of these services.
- Give practitioners the opportunity to gain and test their ability to tailor interventions to meet the needs and preferences of different groups (both during and after training).
- Assess trainees' ability to deliver behaviour-change techniques and tailor interventions to participants' needs.

- Ensure trainers have adequate time and resources to assess participants' motivation, skills and knowledge when delivering interventions to particular groups.

Recommendation 15 Training for behaviour-change practitioners: the detail

Who should take action?

Providers of behaviour-change training.

What action should they take?

- Ensure training objectives include the range of competencies (knowledge and skills) needed to deliver specific interventions. For example, this should cover the types of behaviour being tackled, the types of intervention and behaviour-change techniques used, modes of delivery and outcomes.
- Ensure practitioners understand:
 - factors underpinning the behaviour including psychological, social, cultural and economic factors
 - behaviour-change techniques and why and how an intervention works ([mechanisms of action](#))
 - local policy and demographics.
- Ensure practitioners develop skills in:
 - assessing people's behaviour using validated assessment tools
 - communication, for example in communicating health information
 - rapport and relationship-building
 - referral and signposting to other services
 - developing motivation through reflective listening and empathy.

- Ensure practitioners develop skills in encouraging and enabling people to change and manage their own behaviour. This includes:
 - goal setting
 - providing feedback on behaviour and its outcomes and prompting review of behavioural goals
 - action planning, coping planning and problem solving (see [goals and planning](#), [feedback and monitoring](#))
 - relapse prevention.
- Ensure that practitioners who provide group counselling have the skills to encourage:
 - group discussions
 - group tasks that promote interaction or bonding
 - mutual support within the group.

Recommendation 16 Assessment and feedback for behaviour-change practitioners

Who should take action?

- Providers of behaviour-change training.
- Workplace managers, supervisors and mentors of trainees.
- Researchers.

What action should they take?

- Regularly assess practitioners' ability to deliver behaviour-change techniques and tailor interventions to participants' needs when delivering behaviour-change interventions. Ideally this should involve recording behaviour-change sessions and going through the transcripts, or using a reliable observation tool. Ensure client confidentiality is met.
- Provide practitioners with feedback on their performance, both verbally and in writing, starting with feedback on good performance. If necessary, give them clear targets, an action plan and the option of refresher training to improve their practice.

Recommendation 17 Evaluation of behaviour-change programmes

Who should take action?

- Commissioners and providers of behaviour-change programmes.
- Commissioners of research.
- Researchers (including academics, practitioners and individuals) developing, delivering and evaluating behaviour-change interventions.

What action should they take?

- Be clear about the objectives of an intervention and how these will be evaluated. See principle 7 in [Behaviour change at population, community and individual levels](#) (NICE public health guidance 6), and Medical Research Council [guidance on the development, evaluation and implementation of complex interventions to improve health](#).
- Researchers should work with commissioners and providers to identify the evaluation design, sample size, processes and outcome measures before the intervention takes place. Ensure these address the evaluation questions. This may entail getting specialist input (for example, from the [NIHR research design service](#)).
- Monitor all programmes in terms of outputs (uptake, reach, number and length of sessions delivered), behavioural outcomes in the short, medium and long-term, and how closely it follows the intervention protocol ([intervention fidelity](#)). (See [recommendation 6](#).)
- Where possible, use objective, validated measures of outcome data in a design that can provide new evidence of effectiveness and cost effectiveness. See principles 7 and 8 in [Behaviour change at population, community and individual levels](#) (NICE public health guidance 6).
- Ensure evaluation is carried out by an independent team or organisation.

- Providers of existing programmes should work with researchers to ensure they are rigorously evaluated by:
 - describing the evaluation design
 - measuring [intervention fidelity](#)
 - setting up data collection in routine practice
 - ensuring there are adequate sample sizes
 - ensuring the measures selected are valid and reliable and, where possible, objective rather than self-reported
 - measuring long-term outcomes (more than 1 year).
- Use a systematic evaluation framework to assess strategy and policy linked to healthy behaviour-change. The framework should be clearly described in the evaluation report.

Recommendation 18 National support for behaviour-change interventions and programmes

Who should take action?

- National organisations including Health Education England and Public Health England.

What action should they take?

- Assess whether behaviour-change competencies frameworks are evidence-based.
- Provide guidance on the suitability of these frameworks in terms of who they are aimed at and their content.
- Provide a central repository to submit behaviour-change training curricula.
- Collect routine data on health-related behaviours (such as smoking and alcohol) to monitor the outcomes of behaviour-change interventions, national, regional and local policies and initiatives, and communication campaigns on public health. Track the prevalence of these behaviours over time, region and social group.

2 Public health need and practice

Introduction

Practitioners use a range of interventions when working with a person to improve their health. These usually involve a number of behaviour-change techniques. However, there is a lack of practical advice on which techniques should be used to tackle specific behaviours (for example, in relation to diet, smoking and alcohol) and with people from specific populations or with particular risk factors.

In addition, relatively little is known about how behaviour change can be sustained – not just how to help people deal with a relapse, but when and why a new behaviour becomes habitual.

What is known is that such change is most likely to occur – and be sustained – using a combination of individual, community and population-level interventions. In addition, there is a reasonable evidence base relating to motivation to change (Lai et al. 2010; Ruger et al. 2008).

In 2011, the House of Lords Science and Technology Select Committee reviewed a range of factors that impact on behaviour change. In its final report, the Committee recommended that NICE should update its guidance on the topic; in particular it wanted, ‘more explicit advice on how behaviour change techniques could be applied to reduce obesity, alcohol abuse and smoking’ (House of Lords 2011).

Classifying behaviour-change techniques

Considerable research has been undertaken to classify behaviour-change techniques. The research has included specific techniques to help someone improve their diet or encourage them to be more physically active (Abraham and Michie 2008; Conn et al. 2002; Inoue et al. 2003; Michie et al. 2011a). It has also included techniques for preventing weight gain (Hardeman et al. 2000), stopping smoking (Michie et al. 2011b), reducing alcohol intake (Michie et al. 2012) and HIV prevention (Albarracin et al. 2005).

Work is currently underway to establish which techniques may be universally applicable and which may be more specific. The reliability and validity of the classification system is also being assessed (Michie et al. 2013).

Theoretical frameworks

The importance of having a theoretical basis for the design and evaluation of interventions is well established (Medical Research Council 2008). For example, it can help ensure better outcomes (Albarracin et al. 2005) as well as providing a means of understanding why an intervention is effective or not.

Work has been done to establish theoretical frameworks for behaviour change (Abraham and Michie 2008; Michie et al. 2011a; West 2009) and evidence continues to emerge about these theories (Tuah et al. 2011; Williams and French 2011).

Choice architecture or ‘nudge’ interventions

There has been significant political and academic interest in [choice architecture interventions](#) since publication of NICE’s [behaviour change guidance](#) in 2007. Also known as a ‘nudge’ or ‘nudging’, these interventions can be used to help change behaviour among individuals, communities and populations. There is some evidence that ‘nudges’ have been successfully used by companies to encourage an unhealthy diet by promoting products such as junk food (Marteau et al. 2011).

The 2011 the House of Lords inquiry questioned whether there was sufficient evidence to support choice architecture interventions for the benefit of people’s health (House of Lords 2011).

3 Considerations

The Programme Development Group (PDG) took account of a number of factors and issues when developing the recommendations, as follows. Please note: this section does **not** contain recommendations. (See [Recommendations](#).)

Background

- 3.1 There is a wealth of information and recommendations on interventions related to the behaviours covered in this guidance: alcohol use, eating patterns, physical activity, sexual behaviour and smoking. The PDG did not aim to update or critique these recommendations. Rather, it considered new evidence to add value to the recommendations already made in previous NICE guidance. (See [Related NICE guidance](#).)
- 3.2 The PDG agreed that the principles in [Behaviour change at population, community and individual levels](#) (NICE public health guidance 6) that were relevant to the remit of this guidance were still applicable. These were: principles 1 (planning), 3 (education and training), 4 (individual-level interventions and programmes), 7 (effectiveness) and 8 (cost-effectiveness).
- 3.3 Although this guidance focuses mainly on individual-level behaviour-change interventions and programmes, the PDG agreed that these need to be viewed in the context of a range of other interventions, including those related to the environment.
- 3.4 The PDG noted that tackling behaviour-change among those younger than 16, in particular in relation to issues such as alcohol use and sexual risk-taking, is important. However, this was not part of the remit for this guidance.
- 3.5 The PDG discussed the role of commercial companies in contributing to behaviour change and the potential contribution they could make to behaviour-change programmes. Suppliers and manufacturers could, for example, provide (free of charge) useful data to aid understanding about behaviours such as alcohol use or eating patterns.

Evidence

- 3.6 The authors of the reviews commissioned for this guidance coded the behaviour-change techniques for 'usual care' and 'control' arms in studies. The accuracy of this coding was dependent on the information and level of detail provided in published studies about the control arm. The PDG noted that, as with the reporting of interventions in published research, information and detail about control arms was often poor or missing and in general there was a need for more specific details. This was a particular issue for smoking.
- 3.7 The PDG was aware that specific behaviour-change techniques used in an intervention should not be looked at in isolation. It agreed that behaviour change comes about because of a range of techniques working together (as well as other factors, such as context). The question is, which behaviour-change techniques work most effectively together? The Group noted that theories of behaviour change may help determine which techniques should work synergistically.
- 3.8 The PDG was concerned that the statistical analysis (a meta-regression) presented as part of review 2 was difficult to interpret and use. The taxonomy of behaviour-change techniques helped in discussions and in informing the evidence synthesis, but the PDG was concerned that pooling change technique data across interventions for different behaviours could produce misleading results. First, variations in reporting behaviour-change techniques in the published data posed challenges when trying to provide consistent coding across interventions. Second, the large number of tests undertaken in the analysis, combined with coding issues, could lead to the identification of spurious relationships between techniques. It could also lead to wrong conclusions concerning whether or not a technique is associated with behaviour change. Third, there was the potential confounding effect of other variables

(such as mode of delivery and intervention intensity) with behaviour-change techniques. The PDG noted that this review evidence was weak on assessing the effectiveness of using clusters of behaviour-change techniques.

- 3.9 The PDG did not think recommendations could be based solely on the findings of the meta-regression analysis in evidence review 2. It noted that this review provided evidence of the effect sizes of behaviour-change interventions and details of the behaviour-change techniques used.
- 3.10 The PDG agreed that [triangulation](#) – looking for consistent effects across the different evidence considered by the group – would be appropriate. If specific behaviour-change techniques were evident in effective interventions in the evidence reviews and expert testimony, these findings were used as the basis for recommendations.
- 3.11 The PDG did not make recommendations about behaviour-change techniques that were not identified using the [triangulation](#) process. This is because a lack of supporting evidence across different sources may be because a behaviour-change technique has not been used or evaluated, rather than because it is not effective.
- 3.12 The majority of behaviour-change techniques identified in the taxonomy used in the commissioned evidence reviews (Michie et al. 2013) do not feature in the evidence reviewed. This does not necessarily mean these techniques are not used in the interventions. It may be that they are not reported or described in enough detail to be identified in published articles (see consideration 3.8).
- 3.13 The lack of evidence on sexual behaviour in the commissioned reviews on behaviour-change made it difficult for the PDG to make recommendations on these interventions.

- 3.14 The PDG noted that behaviour-change interventions aimed at alcohol use, eating patterns, physical activity, sexual behaviour, smoking and multiple health behaviours are generally cost effective. The Group also noted that there was little or no consistent association between the presence of any 1 behaviour-change technique (or cluster of techniques) and an intervention being cost effective in the current analyses.

Developing policy and strategy

- 3.15 The PDG ensured the first recommendation highlights the need to have an integrated programme of population, community, organisational and individual-level behaviour-change interventions. It deemed this very important, noting that interventions that target many levels simultaneously tend to be the most effective.
- 3.16 The PDG noted that it was important for all policy and strategy to be in line with the principles of [proportionate universalism](#). This involves providing universal services and additional tailored support to meet the particular needs and choices of those who may find it difficult to use the services.
- 3.17 The PDG discussed whether practitioners and services should aim to change 1 behaviour at a time, or multiple behaviours at once. It also discussed the best strategy to deal with multiple behaviours. Given the lack of evidence on the best approach, it made a recommendation for further research.

Commissioning quality-assured behaviour-change programmes

- 3.18 The PDG was concerned that if private companies were commissioned to provide a behaviour-change service they may not share data because of commercial interests. It noted the

importance of data-sharing for the purposes of monitoring service processes and outcomes.

- 3.19 The PDG noted the importance of all behaviour-change interventions and programmes being conducted in an ethical manner. For example, ensuring participants in an intervention are fully informed of its content and how their data may be used, and ensuring national data protection and confidentiality policies are met.
- 3.20 The PDG considered that sustained changes in behaviour (that is, the maintenance of behaviour change) are vital to improve public health outcomes. It noted that this needs to be planned for at the beginning of the intervention.
- 3.21 The PDG noted the importance of long-term evaluation of behaviour-change interventions and programmes. It also noted that, in reality, intervention effectiveness is often not assessed beyond 6–12 weeks following an intervention.
- 3.22 The PDG noted that details of various study designs, their internal validity, and how to assess the quality of a study can be found in [appendix D](#) of [Methods for the development of NICE public health guidance \(third edition\)](#).

Designing behaviour-change interventions

- 3.23 The PDG noted that the majority of published journal articles on behaviour-change interventions do not provide enough detail to determine the techniques used in intervention and control groups. Where detail is provided, it may reflect the topic covered. For example, scientific studies on alcohol are based on a more standardised way of reporting than, say, scientific studies within the sexual health field. The Group discussed the need for manuals or protocols providing practical detail of the intervention techniques used, and for these to be made publicly available.

- 3.24 Now that most journals have web supplements, the PDG noted that it is possible to give detailed reports of intervention designs whatever the word limit of the main document. The PDG discussed whether journal editors and research councils could consider how manuals or protocols might be incorporated into journal publication requirements. For example, some journals have made it their publishing policy that they will publish only evaluations of interventions that have full protocols publicly available.
- 3.25 The PDG noted the importance of not just the content of an intervention, but who is delivering it (the quality of their core competencies), to whom, how and where.
- 3.26 The PDG discussed the importance of making sure all components of a given intervention are adopted so that they have high [fidelity](#) and are sustainable.

Delivery

- 3.27 Evidence showed that behaviour-change interventions by GPs and other medical staff can be effective. However, the PDG felt that a focus solely on such interventions may lead to a widening in health inequalities, because people from the most vulnerable groups often do not use primary care services. The Group did not want to exclude such interventions, rather it raised the need to find alternative ways of reaching vulnerable groups. The PDG agreed that understanding how people come into contact with and access services was key to the design of behaviour-change interventions.
- 3.28 The PDG noted that details of validated tools for behaviour assessment can be found in academic publications. It noted that specific assessment tools have also been recommended in NICE guidance. For example, [Alcohol-use disorders: preventing harmful](#)

[drinking](#) (NICE public health guidance 24) recommends tools to assess alcohol use.

- 3.29 The PDG agreed that although information is usually a necessary precursor to behaviour change, information alone is insufficient to influence behaviour.
- 3.30 The PDG noted that social, economic and cultural contexts can have an impact on behaviour. Although a sense of connection and belonging at school, within the family or community promotes resilience, unhealthy behaviour can also be embedded in social processes and patterns. The Group also noted that diverse health outcomes can be established early in life.

Behaviour-change techniques

- 3.31 Recommendations to include [goals and planning](#) and [feedback and monitoring](#) techniques in behaviour-change interventions were made on the basis of a cross-examination of behaviour-change techniques identified in expert paper 14 and the evidence reviews. ([Triangulation](#) techniques were used.) The process indicated that the techniques would be effective as part of interventions on alcohol, diet, physical activity, and smoking. These behaviour-change techniques are described in detail in Michie et al. 2013.
- 3.32 Because of time constraints, it was not possible to review additional evidence on sexual health interventions and behaviour-change techniques. However, the PDG noted that in existing NICE guidance social support was used in the majority of effective interventions for all behaviours (alcohol, diet, physical activity, sexual behaviour and smoking interventions).
- 3.33 The PDG noted that social support given by non-professionals (such as family members) could lead to an unhealthy

co-dependency, bullying, manipulation or other questionable dynamics if not managed effectively.

- 3.34 The PDG noted that principle 4 on individuals in [Behaviour change at population, community and individual levels](#) (NICE public health guidance 6) recommended some specific behaviour-change techniques. It agreed that, for consistency of approach, these would be 'coded' using the taxonomy applied in the commissioned evidence reviews (Michie et al. 2013), which identified the following groupings of behaviour-change techniques: ['goals and planning'](#), ['feedback and monitoring'](#), ['social support'](#), 'natural consequences', 'comparison of behaviour', 'repetition and substitution' and 'antecedents'.
- 3.35 The PDG noted that interventions are unlikely to be effective if providers are not properly trained or the setting is not appropriate.

Training

- 3.36 The PDG noted the importance of training. For example, it discussed the fact that if 1 person successfully trained 100 practitioners, they in turn could help 10,000 people, and the knock-on effects would be huge.
- 3.37 The PDG discussed the importance of communication skills for the successful delivery of behaviour change interventions. In particular, how to initiate a conversation, develop rapport, and communicate information effectively.
- 3.38 The PDG did not discuss the accreditation of training. This may be an area for which future guidance is needed.
- 3.39 The PDG was concerned that training programmes still describe the stages of change model (also known as the transtheoretical model) as a theoretical basis for behaviour-change interventions. The PDG wanted to highlight that, although it may help practitioners to understand their client's experience of behaviour

change, it is not a theory that explains and predicts such change. It noted that evidence indicates that interventions based on this model alone are not effective.

Evaluation

- 3.40 The PDG noted that qualitative, as well as quantitative measures, are important when trying to understand why something does or does not work, under what circumstances, and to identify improvements or changes that need to be made.
- 3.41 The PDG noted that the setting in which an intervention is delivered and the person delivering it may be the 2 factors that make an intervention effective (or ineffective).

Choice architecture

- 3.42 On the basis of current evidence, the PDG felt that it would be premature to make any recommendations on the use of choice architecture interventions (see expert paper 8). As a result, only research recommendations were made.
- 3.43 A scoping review of the evidence base for choice architecture interventions targeting healthy behaviour indicated that the majority of evidence involved diet (see expert paper 8). However, the PDG questioned whether such interventions did lead to a healthy diet.
- 3.44 The PDG noted that in the context of choice architecture 'doing nothing' is not a neutral approach, because this simply maintains the status quo. This may, for example, be an 'obesogenic environment' constructed by commercial interests.
- 3.45 The PDG recognised that choice architecture interventions may appeal to people working on behaviour change in a local authority setting because they may be perceived to be relatively low in cost, and have the potential to reach a relatively large number of

people. However, given the lack of evidence on the effectiveness of choice architecture interventions for health-related behaviour change, the PDG were of the view that anyone wishing to commission or provide such an intervention as part of a behaviour change service should be mindful of issues with the evidence base, and ensure that any intervention is appropriately evaluated.

- 3.46 Although the PDG were not able to make recommendations on choice architecture interventions at this time, they noted that a further evidence synthesis on this approach¹ is due to be published soon. The PDG advise that this guidance be reviewed for update following publication of this evidence synthesis.

This section will be completed in the final document.

4 Recommendations for research

The Programme Development Group (PDG) recommends that the following research questions should be addressed. It notes that ‘effectiveness’ in this context relates not only to the size of the effect, but also to cost effectiveness and duration of effect. It also takes into account any harmful/negative side effects.

- 4.1 Which [choice architecture interventions](#)/nudges help reduce increased-risk and higher-risk drinking, help people stop or reduce their smoking, or help increase the physical activity levels of the general UK population? How is this related to socioeconomic status?
- 4.2 What evidence of effectiveness is there on the use of [choice architecture interventions](#) in commercial settings to influence health-related behaviours? How can findings from commercial settings support non-commercial choice architecture approaches to support healthy behaviour change?

¹ Evidence synthesis on choice architecture is currently being undertaken by the Behaviour and Health Research Unit, University of Cambridge. [Evidence](#) from other work by the unit has been considered by the PDG as expert testimony during the development of this guidance.

- 4.3 Which combinations of behaviour-change techniques are effective and cost effective in changing particular behaviour patterns (smoking, higher-risk and increased-risk drinking, diet, physical activity and sexual behaviour). How does this vary among people from different socioeconomic groups? This should include research that builds up the evidence base on the effectiveness of each behaviour-change technique. (For example, randomised control trials could be used to compare interventions that include or exclude a specific technique.)
- 4.4 Which interventions are effective at changing multiple behaviours? How does this vary among people from different socioeconomic groups?
- 4.5 What is the relationship between training, competencies and the effectiveness of behaviour-change interventions?

More detail identified during development of this guidance is provided in [Gaps in the evidence](#).

5 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. See the [NICE website](#) for a list of the relevant publications on alcohol use, eating patterns, physical activity, sexual behaviour and smoking.

6 Glossary

Alcohol: recommended weekly limits

For current government recommendations on weekly limits for alcohol consumption, see the [Drinkaware](#) website. Regularly consuming between 22 and 50 units per week (men) or between 15 and 35 units per week (women) is described as 'increasing-risk drinking'. Regularly consuming more than

50 alcohol units per week (men) or more than 35 units per week (women) is described as 'higher-risk drinking'.

Behaviour-change technique

The term 'behaviour-change technique' is used in this guidance to mean a component of an intervention that has been designed to change behaviour. The technique must meet specified criteria so that it can be identified, delivered and reliably replicated. For example, see [social support](#).

Brief intervention

Brief interventions involve verbal discussion, negotiation or encouragement, with or without written or other support or follow-up. They can be delivered by a range of primary and community care professionals. These interventions are often carried out when the opportunity arises, typically taking no more than a few minutes for basic advice. They may also involve a referral for further interventions or more intensive support.

Capability, opportunity, motivation

For any change in behaviour to occur, a person must:

- be physically and psychologically capable of performing the necessary actions (have the capability)
- have the physical and social opportunity (people experience inequity and have different opportunities based on their social position; for example, it is more difficult to have a healthy diet in an area with many fast food outlets and no shops selling fresh food)
- be more motivated to make the changes at the relevant time than to do anything else.

Motivation is defined as the process that initiates, guides and maintains goal-oriented behaviours. It involves the biological, emotional, social and cognitive forces that cause us to act. Psychologists have proposed several theories of motivation, including drive theory, instinct theory and humanistic theory. (For further details see [What is motivation?](#)).

Further details on how capability, opportunity and motivation link together and work synergistically to influence behaviour are described in the COM-B model ([Michie et al. 2011d](#)).

Choice architecture intervention

The term ‘choice architecture’ intervention is used in this guidance to mean an intervention that involves changing the context in which someone makes a decision in an attempt to influence that decision and subsequent behaviour. Behaviour-change approaches based on ‘choice architecture’ have recently been referred to as ‘nudge’ or ‘nudging’ interventions (Thaler and Sunstein 2008).

Co-produce

Co-production means delivering public services in an equal and reciprocal relationship between professionals, people using services, their families and their neighbours. (For further details see the new economics foundation [Right here, right now report](#).)

Extended brief intervention

An extended brief intervention is similar in content to a [brief intervention](#) but usually lasts more than 30 minutes and consists of an individually-focused discussion. It can involve a single session or multiple brief sessions.

Goals and planning

‘Goals and planning’ refers to a group of behaviour-change techniques that help people to set goals for their behaviour or for an outcome of the behaviour (such as weight loss) and plan how these goals will be met. It includes making a detailed plan of what the person will do: this comprises a description of the behaviour, how often it will happen, for how long, and where it will take place. The resulting behaviour goals are reviewed regularly and further plans are made as goals are achieved.

Feedback and monitoring

‘Feedback and monitoring’ refers to a group of behaviour-change techniques that involve recording the behaviour (for example, alcoholic drinks consumed)

or the outcomes (for example, changes in weight following changes to diet). Feedback takes the form of information on the recorded behaviour or outcomes (for example, measurement of weight) or comment on progress towards a set goal. It includes self-monitoring: the client keeps a record of specified behaviours, for example, in a diary or by completing a questionnaire about their behaviour.

High intensity interventions

High intensity interventions are typically of a longer duration than [extended brief interventions](#) and are delivered over multiple sessions.

Individual-level behaviour-change intervention

In this guidance, 'individual-level behaviour-change intervention' is used to mean a type of intervention that aims to help someone with a specific health condition, or a behaviour that may affect their health. A nutritional intervention offered to anyone with a specific biomarker (for example, a specific body mass index) or health status (for example, obesity) is 1 example. However, a nutritional intervention offered to everyone in the country, or a particular city, is not. Although delivered at the individual level, the intervention may have an impact on a whole group or population. For example, counselling is carried out on an individual basis, but if enough people have counselling it could have an effect on the population as a whole.

Intervention fidelity

Intervention fidelity is the degree to which the planned components of an intervention have been delivered as intended.

Mechanism of action

Mechanisms of action are the means by which a course of action leads to a particular outcome.

Proportionate universalism

Proportionate universalism is a principle of supporting the provision of universal services while also providing additional tailored support to meet the

particular needs and choices of people who may find it difficult to use the services in question (see the [Marmot Review website](#) for further information).

Social support

Social support involves friends, relatives, colleagues or 'buddies' providing support for people who need to change their behaviour (for example, to quit smoking). It can take the form of:

- practical help (for example, helping someone to free up the time they need to get to a service or use a facility, or helping them to get there)
- emotional support (for example, a partner or friend could go walking or cycling with the person on a regular basis if they need to get more physically fit)
- non-contingent praise or reward (for example, a partner or friend could make sure they congratulate the person for attempting to lose weight or stop smoking).

This should only be done if it does not support unhealthy co-dependency, bullying, manipulation or other questionable dynamics.

Taxonomy

A taxonomy is a system of naming, describing and classifying techniques, items or objects. For example, a website taxonomy includes all the elements of a website and divides them into mutually exclusive groups and subgroups. An example of a behaviour-change technique taxonomy that can be applied across behaviours is described in [Michie et al. 2013](#).

Triangulation

Triangulation is a technique used in research and evidence review. In triangulation, multiple data or information sources are used to confirm or expand an analysis or interpretation.

Very brief intervention

A very brief intervention can take from 30 seconds to a couple of minutes. It follows an 'ask, advise, assist' structure. For example, very brief advice on

smoking would involve recording the person's smoking status and advising them that stop smoking services offer effective help to quit. Then, depending on the person's response, they may be directed to these services.

7 References

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Michie S, van Stralen MM, West R (2011d) The behaviour change wheel: a new method for characterising and designing behaviour change interventions, *Implementation Science* 6: 42

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Williams SL, French DP (2011) What are the most effective intervention techniques for changing physical activity self-efficacy and physical activity behaviour – and are they the same? *Health Education Research* 26: 308–22

8 Summary of the methods used to develop this guidance

Introduction

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

The minutes of the Programme Development Group (PDG) meetings provide further detail about the Group’s interpretation of the evidence and development of the recommendations.

All supporting documents are listed in [About this guidance](#).

Guidance development

The stages involved in developing public health programme guidance are outlined in the box below.

1. Draft scope released for consultation
2. Stakeholder meeting about the draft scope
3. Stakeholder comments used to revise the scope
4. Final scope and responses to comments published on website
5. Evidence reviews and economic reports undertaken and submitted to PDG

6. PDG produces draft recommendations
7. Draft guidance (and evidence) released for consultation
8. PDG amends recommendations
9. Final guidance published on website
10. Responses to comments published on website

Key questions

The key questions were established as part of the scope. They formed the starting point for the reviews of evidence and were used by the PDG to help develop the recommendations. The overarching questions were:

1. Which interventions are an effective and cost effective way of changing someone's behaviour and then helping them to sustain that change?
2. Which specific behaviour-change techniques (and combinations of behaviour-change techniques) are effective and cost effective at helping individuals change and then sustain the new behaviour in the long term (for at least 6 months following the intervention)?
3. Which behaviour-change techniques are only effective for specific behaviours, such as helping people to quit alcohol or smoking? Which techniques can be used to tackle a range of behaviours?
4. What characteristics and competencies are needed to deliver behaviour-change interventions and techniques effectively?
5. How do the effects of individual interventions/behaviour-change techniques vary across different population groups?
6. Which theories explain when, why and how behaviour change is maintained?

These questions were made more specific for each review (see reviews for further details).

Reviewing the evidence

Effectiveness reviews

Two reviews of effectiveness were conducted.

Identifying the evidence

The NICE website was searched in July 2012 for public health guidance relating to individual-level behaviour-change interventions published since 2006 that address: alcohol, diet, physical activity, sexual behaviour, or smoking. See review 1 for details.

A number of databases were searched between July and September 2012 for papers relating to individual-level behaviour-change interventions published since 2003 that address: alcohol, diet, physical activity, sexual behaviour, or smoking. See review 2 for details of the databases searched.

Selection criteria

Studies were included in the effectiveness reviews if they:

- covered individual-level interventions aimed at behaviour change in relation to at least 1 of the following: alcohol, diet, physical activity, sexual behaviour and smoking
- were published by NICE (review 1)
- were randomised controlled trials or systematic reviews published from 2003 onwards in English (review 2).

Studies were excluded from both reviews if they focused on:

- people younger than 16 years
- community- or population-level interventions
- national policy, fiscal and legislative measures.

See each review for details of the inclusion and exclusion criteria.

Other reviews

One review of qualitative data was undertaken (review 3).

Identifying the evidence

A number of databases were searched in September 2012 for papers published since 2003 on the characteristics and competencies needed to deliver individual-level behaviour-change interventions and techniques. Specifically, the search focused on papers addressing alcohol, diet, physical activity, sexual behaviour or smoking. See review 3 for details of the databases searched.

Selection criteria

Studies were included in review 3 if they described the skills or training needed to deliver behaviour-change interventions in relation to at least 1 of the following: alcohol, diet, physical activity, sexual behaviour or smoking.

Studies were excluded if they focused on:

- community- or population-level interventions
- clinical or pharmacological methods with no public health or health promotion element
- psychiatric interventions delivered as part of the therapeutic process for people with a mental health problem.

Quality appraisal

Included papers were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in [Methods for the development of NICE public health guidance](#). Each study was graded (++, +, –) to reflect the risk of potential bias arising from its design and execution.

Study quality

++ All or most of the checklist criteria have been fulfilled. Where they have not been fulfilled, the conclusions are very unlikely to alter.

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

Summarising the evidence and making evidence statements

The review data was 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 were prepared by the external contractors (see [About this guidance](#)). The statements reflect their judgement of the strength (quality, quantity and consistency) of evidence and its applicability to the populations and settings in the scope.

Cost effectiveness

There were 2 reviews of economic evaluations.

Review of economic evaluations

Review 1 involved an analysis of interventions already assessed by NICE as cost effective. The aim was to identify and classify the behaviour-change techniques used in individual-level interventions and those based on choice architecture. The results are reported in: Shahab L, Beard E, Gardner B 'Behaviour change update stage 1: BCT analysis of existing, cost-effective interventions'. [Link to be added for publication]

Review 2 involved a search of economic databases using the search strategies developed for the effectiveness reviews for the behaviour change update. The overall aim was to identify any additional economic evidence not already covered by NICE's existing analyses. The specific aims were to:

- identify and classify the behaviour-change techniques used

- compare the behaviour-change techniques used in interventions judged either cost-effective and cost-ineffective by NICE
- compare the behaviour- change techniques of cost-effective interventions identified in review 1 with cost-effective interventions in review 2.

The results are reported in: Shahab L, Lorencatto F, Beard E 'Behaviour change update: Stage 3: BCT analysis of behaviour change interventions reported in studies of cost effectiveness'. [\[Link to be added for publication\]](#)

How the PDG formulated the recommendations

At its meetings in September, October and December 2012, March and April 2013, the Programme Development Group (PDG) considered the evidence, expert testimony and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of strength and applicability) to form a judgement
- where relevant, whether (on balance) the evidence demonstrates that the intervention or programme/activity can be effective or is inconclusive
- where relevant, the typical size of effect (where there is one)
- whether the evidence is applicable to the target groups and context covered by the guidance.

The PDG developed draft recommendations through informal consensus, based on the following criteria:

- Strength (type, quality, quantity and consistency) of the evidence.
- The applicability of the evidence to the populations/settings referred to in the scope.
- Effect size and potential impact on the target population's health.
- Impact on inequalities in health between different groups of the population.
- Equality and diversity legislation.
- Ethical issues and social value judgements.
- Cost effectiveness (for the NHS and other public sector organisations).
- Balance of harms and benefits.
- Ease of implementation and any anticipated changes in practice.

The PDG noted that although effectiveness can vary according to the context, there was little evidence addressing the impact of interventions on different groups of people (for example according to ethnicity, socioeconomic status, or disability). Where evidence was lacking, the PDG also considered whether a recommendation should be implemented only as part of a research programme. One 'in-research only' recommendation was made (see recommendation 3).

Where possible, recommendations were linked to an evidence statements (see [The evidence](#) for details). Where a recommendation was inferred from the evidence, this was indicated by the reference 'IDE' (inference derived from the evidence).

9 The evidence

This section lists the evidence statements from 3 reviews provided by external contractors (see [What evidence is the guidance based on?](#)) and links them to the relevant recommendations. (See [Summary of the methods used to develop this guidance](#) for the key to quality assessments.)

This section also lists 14 expert papers and their links to the recommendations and sets out a brief summary of findings from the economic analysis.

The evidence statements are short summaries of evidence, in a review, report or paper (provided by an expert in the topic area). Each statement has a short code indicating which document the evidence has come from. The letters in the code refer to the type of document the statement is from, and the numbers refer to the document number, and the number of the evidence statement in the document.

Evidence statement number 1.1 indicates that the linked statement is numbered **1** in **review 1**. **Evidence statement number 2.1.3** indicates that the linked statement is numbered **1.3** in **review 2**. **Evidence statement number 3.3.4** indicates that the linked statement is numbered **3.4** in **review 3**. **EP1** indicates that expert paper **1** is linked to a recommendation.

The reviews, expert papers and economic analysis are available [online](#). Where a recommendation is not directly taken from the evidence statements, but is inferred from the evidence, this is indicated by IDE (inference derived from the evidence).

- Recommendation 1: EP3, EP4, EP6–9, EP13
- Recommendation 2: EP4–6, EP9, EP13
- Recommendation 3: EP1, EP3–5, EP14
- Recommendation 4: evidence statements 3.1.1, 3.1.2, 3.1.3 EP 10, EP11
- Recommendation 5: EP1–3, EP5, EP14
- Recommendation 6: EP1–3
- Recommendation 7: EP10–12
- Recommendation 8: EP3, EP5, EP6, EP9
- Recommendation 9: EP1–3, EP5, EP9
- Recommendation 10: evidence statements 1.2, 1.4, 1.6, 1.7, 1.9, 1.10–1.19, 1.20, 1.21, 2.4.4, 2.4.5, 2.5.5, 2.5.6, 3.3.3, 3.3.4, 3.3.6, 3.3.7, EP14
- Recommendation 11: evidence statements 1.2, 1.4, 1.6, 1.7, 1.9, 1.10–1.19, 1.20, 1.21, 2.4.4, 2.4.5, 2.5.5, 2.5.6, 3.3.3, 3.3.4, 3.3.6, 3.3.7, EP14
- Recommendation 12: EP5, EP10–12
- Recommendation 13: EP5, EP10–12
- Recommendation 14: EP5, EP10–12
- Recommendation 15: evidence statements: 3.3.1–3, 3.2.1, 3.2.2, 3.3.1–9, EP5, EP10–12
- Recommendation 16: EP5, EP10–12
- Recommendation 17: EP1–3, EP14
- Recommendation 18: IDE

Evidence statements

Please note that the wording of some evidence statements has been altered slightly from those in the evidence reviews to make them more consistent with each other and NICE's standard house style.

Evidence statement 1.2

There is evidence from 1 systematic review (++)¹ and 1 meta-analysis (+)² that individual counselling has an effect in facilitating smoking cessation. Further evidence from a single study (-)³ showed an inconclusive effect of motivational interviewing in smoking cessation. The elements of the individual counselling interventions were not deducible from the evidence tables associated with the guidance. However, most behavioural counselling elements would map to BCT social support (unspecified). There may be additional applicable BCTs that were used but were not recorded in the evidence tables and so are not included here.

¹ Moher et al. 2005

² Fisher et al. 1990

³ Dunn et al. 2001

Evidence statement 1.4

Two systematic reviews (1 [+]¹ and 1 [++]²) and 1 meta-analysis (+)³ provide evidence that NRT can be effective at facilitating smoking cessation as part of a brief intervention or with low intensity support. The definition of low-intensity in 1 review¹ was intended to identify a level of support that could be offered as part of the provision of routine medical care. If the duration of time spent with the smoker (including assessment for the trial) exceeded 30 minutes at the initial consultation or the number of further assessment and reinforcement visits exceeded 2, the level of additional support was categorised as high.

Behaviour change techniques: pharmacological support with or without support (BCT: social support [unspecified]).

¹ Silagy et al. 2004

² Moher et al. 2005

³ Fisher et al. 1990

Evidence statement 1.6

A single Cochrane review (+)¹ provides evidence that proactive telephone counselling has a positive effect on smoking quit rates compared with less intensive interventions (less intensive not defined in the evidence tables; odds ratio [OR] 1.56, 95% confidence interval [CI] 1.38–1.77). Adding telephone support to face-to-face interventions or NRT did not have a long-term effect on quit rates.

The Cochrane review concluded that proactive telephone counselling (rather than reactive telephone support) helps smokers interested in quitting. Also that telephone quitlines provide an important route of access to support for smokers and call-back counselling enhances their usefulness.

No coding of BCTs was possible from information in the evidence table. [NICE public health guidance 5](#) describes telephone counselling and quitlines as providing proactive or reactive advice, encouragement and support over the telephone (BCT: social support [unspecified]) to anyone who smokes who wants to quit, or who has recently quit. It was noted in public health guidance 6 that review level evidence (1 [+]² and 1 [-]³) on social support interventions, including buddy systems or support from friends and family, showed 'less clear, poor quality or inconclusive evidence of effect'. Hence, the specific type of social support (professional or family) and method (face-to-face or telephone support) may be important and related to its effectiveness at bringing about behaviour change.

¹ Stead et al. 2003

² Park et al. 2004

³ May and West 2000

Evidence statement 1.7

There is evidence from a systematic review (++)¹ that cognitive behaviour therapy (CBT), motivational interviewing and structured self-help and support from NHS stop smoking services can be effective at increasing quit rates in pregnant women.

There is additional evidence from 4 UK studies (all [+]²⁻⁵) that NHS stop smoking services (including provision of NRT) are effective.

One randomised controlled trial (RCT) (++)⁶ found no effect regarding the effectiveness of NRT for promoting smoking cessation in pregnancy.

CBT, a form of directive psychotherapy that emphasises the interrelated influence of thoughts, feelings and behaviour, is a more intensive form of counselling (with social support) provided by NHS stop smoking support services (BCT: social support [unspecified]). These services also encompass practical (BCT: social support [practical]) and emotional support (BCT: social support [emotional]) to aid smoking cessation and so represent all elements of BCT cluster 'social support'. NHS stop smoking services can also contain an element of pharmacological support in the form of nicotine replacement therapy and other medicines to help quit smoking (BCT: pharmacological support) although there was mixed evidence that NRT was effective in other contexts.

Motivational interviewing is an often poorly defined term but can be considered to aim to persuade the person to engage in the target behaviour (intervention function: persuasion). Self-help material interventions were not defined in enough detail to deduce their function (for example, to persuade or motivate) but are an example of BCT: adding objects to the environment to facilitate behaviour change.

¹ Lumley et al. 2009

² Bryce et al. 2007

³ Lee et al. 2006

⁴ Macaskill et al. 2008

⁵ McGowan et al. 2008

⁶ Oncken et al. 2008

Evidence statement 1.9

One systematic review (+)¹ of RCT and non-RCT studies found no conclusive evidence for the effectiveness of health education and counselling interventions to encourage pregnant women to eat healthily. There is also inconclusive evidence from 1 RCT (+)² as to whether dietary intervention alone helps women across the body mass index (BMI) spectrum start to lose weight after childbirth.

Three RCTs (1 [+]³ and 2 [-]^{4,5}) from the USA found that interventions focusing on diet and exercise resulted in decreased calorie intake^{3,4,5} and decreased consumption of unhealthy foods in women postpartum³.

Behaviour-change components

Two RCTs^{4,5} indicated that the characteristics of programmes that are effective in enabling some women to lose weight in the postpartum period are those that: combine diet and physical activity; include strategies for behaviour change; tailor the intervention to individual or group needs; include some group sessions and written materials; provide on-going support (BCT: social support [unspecified]) and contact with programme staff; and are of a sufficient duration to make sustained lifestyle changes (see [NICE public health guidance 11](#), evidence statement 3.5). The behaviour change components identified by the authors above are not detailed enough to code individual BCTs. Information from the evidence tables suggests that 1 RCT⁴ tended to focus on BCT clusters 'Feedback and monitoring', 'Social support' and 'Goals and planning' as well as including discussion of behaviour change (no code) and problem-solving strategies (BCT: problem solving). The intervention in the RCT³ also discussed behaviour-change strategies and problem solving with participants alongside implementing aspects of BCT clusters 'Goals and planning' and 'Feedback and monitoring'. The main intervention components in the RCT⁵ were also related to BCT clusters 'Goals and planning' and 'Feedback and monitoring'.

¹ Van Teijlingen et al. 1998

² McCrory et al. 1999

³ Lovelady et al. 2006

⁴ Leermakers et al. 1998

⁵ O'Toole et al. 2003

Evidence statement 1.10

There is a small body of evidence from 5 RCTs (2 [++]^{1,2}, 2 [+]^{3,4} and 1 [-]⁵) and 1 controlled non-RCT (-)⁶ showing brief interventions in primary care can be effective in producing moderate increases in physical activity in middle aged and older populations in the short term (6–12 weeks), longer term (more than 12 weeks) or very long term (more than 1 year). For the effect to be sustained at 1 year, the evidence suggested that several follow-up sessions over a period of 3–6 months are needed after the initial consultation episode.

The same 6 studies provide inconclusive evidence for the benefit of including a 'written prescription' outlining physical activity goals and or step testing during the intervention consultation.

Qualitative evidence from 2 interview studies (both [++]^{7,8}) and 1 focus group study (++)⁹ suggests health information and support could facilitate healthy lifestyle changes.

Behaviour change components

The 6 effective studies cited above all contained brief advice, either verbal or written (intervention function: education), alone or in combination with 1 of the following: motivational interviewing (intervention function: persuasion), calls from an exercise specialist (BCT cluster 'social support'), and in 1 case⁵ a physical activity plan for the next 3 months (BCT: action planning). The qualitative evidence cited above indicated that well-received approaches included: motivational interviewing, check-up visits, formal measurements, and repeat tests to monitor and help sustain behaviour change.

¹ Elley et al. 2003

² Petrella et al. 2003

³ Harland et al. 1999

⁴ Swinburn et al. 1998

⁵ Halbert et al. 2000

⁶ Bull and Jamrozik 1998

⁷ Penn et al. 2008

⁸ Jallinoja et al. 2007

⁹ Troughton et al. 2008

Evidence statement 1.11

There is a body of evidence (3 studies, all [++]¹⁻³) that shows that lifestyle interventions based on physical activity alone appear effective at increasing physical activity levels and reducing the incidence of type 2 diabetes in adults with existing impaired glucose tolerance.

There is evidence that lifestyle interventions combining physical activity and diet are more effective at reducing diabetes risk than those of diet or physical activity alone based on a meta-analysis of 12 RCTs⁴.

Behaviour change components

Behavioural components associated with physical activity behaviour change interventions to reduce the risk of type 2 diabetes were analysed by 3 relatively recent reviews (all [++]^{1,5,6}). These authors suggested that the following techniques were associated with effective interventions for reducing the risk of type 2 diabetes: a prescriptive approach that gradually increased the frequency and volume of activity over time (BCT: graded tasks) as well as providing observational and vicarious learning opportunities (BCT: vicarious consequences) and encouraging self-monitoring (BCT: self-monitoring of outcomes). Encouragement through direct supervision of physical activity was also highlighted. No BCT was coded for 'direct supervision' because it was unclear how the supervision was used to change behaviour, for example to provide external monitoring or feedback, instruction or a demonstration of the correct behaviour for modelling purposes.

¹ Baker et al. 2011

² Paulweber et al. 2010

³ Pan et al. 1997

⁴ [ScHARR 2011](#)

⁵ Norris et al. 2007

⁶ Yuen et al. 2010

Evidence statement 1.12

There is broadly conclusive, moderate or high quality evidence in support of effectiveness for brief interventions for adults in primary care consisting of information and advice. Six studies (2 RCTs [++]^{1,2}, 2 RCTs [+]^{3,4}, 1 RCT [-]⁵ and 1 non-RCT [-]⁶), showed short-term (6–12 weeks) effectiveness but had a limited effect in the medium (more than 12 weeks) and long term (more than 1 year).

There is broadly conclusive, moderate or high quality evidence in support of effectiveness of home-based, group-based, and educational physical activity interventions on increasing physical activity among older people. Two systematic reviews (1 [++]⁷ and 1 [-]⁸) showed a small but short-lived (not accurately defined from summary evidence) effect.

There is mixed quality evidence (1 RCT [++]⁹ and 3 RCTs [-]^{5,10,11}) that exercise referral may be effective at increasing physical activity in the in short term (6 to 12 weeks), but ineffective in the long term (more than 12 weeks) or very long term (more than 1 year).

There is mixed quality equivocal evidence from 6 studies (2 RCTs [++]^{1,2}, 2 RCTs [+]^{3,4}, 1 RCT [-]⁵ and 1 non-RCT [-]⁶) on the additional benefit of brief interventions containing a 'written prescription' outlining physical activity goals and/or step testing during the consultation.

There is mixed quality equivocal evidence from 4 RCTs (all [-]^{12–15}) on pedometer based interventions.

There is mixed quality equivocal evidence on referral to community walking schemes from 2 individual RCTs (1 [++]⁹ and 1 [-]¹⁶), 1 cluster RCT [++]¹⁷, and 1 delayed intervention study [-]¹⁸.

There is mixed quality equivocal evidence on using biomarker feedback, brief motivational interventions and counselling interventions from 2 systematic reviews (1 [-]¹⁹ and 1 [+]²⁰).

Behaviour change components

A systematic review of RCTs (++)²¹ looked at behaviour change characteristics associated with effective interventions for preventing diabetes. For physical behaviour change it concluded that trials that demonstrated effectiveness reported a prescriptive approach that gradually increased the frequency and volume of activity over time (BCT: graded tasks) as well as providing observational and vicarious learning opportunities (BCT: vicarious consequences) and encouraging self-monitoring (BCT: self-monitoring of outcomes). Three of the successful trials also included direct supervision of physical activity (see NICE public health guidance 38 [Preventing type 2 diabetes: risk identification and interventions for individuals at high risk](#), evidence statement 3.8). No BCT was coded for 'direct supervision' because it was unclear how the supervision was used to change behaviour, for example, to provide external monitoring or feedback, instruction or a demonstration of the correct behaviour for modelling purposes.

¹ Elley et al. 2003

² Petrella et al. 2003

³ Harland et al. 1999

⁴ Swinburn et al. 1998

⁵ Halbert et al. 2000

⁶ Bull and Jamrozik 1998

⁷ van-der-Bij et al 2002

⁸ Conn et al 2003

⁹ Lamb et al. 2002

¹⁰ Taylor et al. 1998

¹¹ Harrison et al. 2005

¹² DuVall et al. 2004

¹³ Moreau et al. 2001

¹⁴ Tudor-Locke et al. 2004

¹⁵ Talbot et al. 2003

¹⁶ Hamdorf and Penhall 1999

¹⁷ Fisher and Li 2004

¹⁸ Macrae et al. 1996

¹⁹ McClure 2002

²⁰ Eden et al. 2002

²¹ Baker et al. 2011

Evidence statement 1.13

A meta-analysis of 9 studies¹ showed that diet or physical activity interventions can reduce the progress to diabetes for people with impaired glucose tolerance (pooled hazard ratio [HR] 0.51, 95% CI 0.43 to 0.62). Combined interventions were more effective than diet or physical activity interventions alone.

Behaviour-change components

Behavioural components associated with diet and physical activity behaviour change interventions to reduce the risk of type 2 diabetes were analysed by 3 reviews (all [++]²⁻⁴). They describe the following components as being associated with effective interventions:

- Delivering written information as well as verbal advice intervention function: education).
- Encouraging self-monitoring; and logging of physical activity, diet and weight change (BCT: self-monitoring of behaviour and BCT: self-monitoring of outcomes).

- Gradually increasing volume and frequency of physical activity levels (BCT: graded tasks).
- Encouragement through direct supervision. No BCTs could be identified for 'direct supervision' because it was unclear exactly how the supervision was used to change behaviour, for example, to provide encouragement through external monitoring or feedback, instruction or a demonstration of the correct behaviour for modelling purposes.
- Regular reinforcement of set goals (BCT cluster: 'Goals and planning').
- Social support (BCT cluster: 'Social support').
- Self-regulatory behaviour change techniques, for example, goal-setting (BCT cluster: 'Goals and planning') and self-monitoring (BCT cluster: 'Feedback and monitoring').
- Motivational interviewing (intervention function: persuasion).
- Brief advice, usually alongside goal-setting (intervention function: education alongside BCT cluster 'Goals and planning'), time management techniques (for physical activity) and encouraging self-talk (BCT: self-talk) (for both dietary change and physical activity).
- Pedometer interventions, that is, self-monitoring of physical activity (BCT: self-monitoring of behaviour), usually alongside step-goals (BCT: goal-setting [behaviour]) or step diaries (BCT: self-monitoring of behaviour).

Importantly, earlier evidence on pedometer use in adults (evidence statement 12) concluded that the evidence was equivocal. NICE public health guidance on [walking and cycling](#) (NICE public health guidance 41) includes evidence on the use of pedometers for increasing physical activity.

¹ Jones et al. 2012

² Baker et al. 2011

³ Norris et al. 2007

⁴ Yuen et al. 2010

Evidence statement 1.14

There is evidence from 5 RCTs (all [-]¹⁻⁵) that diet and exercise programmes are effective in enabling some women to lose weight gained during

pregnancy²⁻⁴. Combined diet and physical activity interventions are more effective than diet or physical activity alone and integrated programmes of activity that support participants to promote weight loss are more effective than information alone^{1,5}.

There is further evidence from 1 Australian-based case series⁶ (not quality graded in the evidence review but described in the main text as 'weak' evidence) that obese women trying to become pregnant but experiencing infertility can make a statistically significant reduction in BMI through a programme that includes regular physical activity, advice about healthy eating and group support.

Behavioural-change components

Two RCTs^{1,5} provide evidence that the following characteristics are associated with effective interventions that enable some women to lose weight in the postpartum period: intervention function: education, BCT clusters 'Social support' and 'Goals and planning', BCT: self-monitoring of behaviour, BCT: self-monitoring of outcomes, and BCT: action planning. Evidence from 1 case series⁶ also identified BCT: behavioural practice/rehearsal and BCT: problem-solving.

¹ Leermakers et al. 1998

² Lovelady et al. 2000

³ Lovelady et al. 2006

⁴ McCrory et al. 1999

⁵ O'Toole et al. 2003

⁶ Galletly et al. 1996

Evidence statement 1.15

There was evidence from 2 systematic reviews (1 of RCTs [++]¹ and 1 of RCTs and non-RCTs [+]²) quoted in NICE public health guidance 6 that showed evidence of a small positive effect of brief behavioural counselling interventions in reducing alcohol intake (mean reduction of approximately 4 drinks per week) in problem drinkers. There was evidence from a systematic

review (-)³ of RCTs showing a small, positive effect of behavioural counselling interventions in reducing alcohol consumption.

Behavioural-change components

Interventions for problem drinkers in the evidence review for [NICE public health guidance 6](#) were described as ‘behavioural self-control interventions’ and ‘multi-contact behavioural counselling interventions’ including ‘behavioural self-control training’. This included 1 or more of the following elements: abstinence training (BCT cluster ‘Repetition and substitutions’), education, information (both intervention function: education) coping skills (BCT: problem solving), counselling (BCT: social support [unspecified]) and self-monitoring (BCT: self-monitoring of behaviour).

¹ Bertholet et al. 2005

² Whitlock et al. 2004

³ Walters Glenn 2000

Evidence statement 1.16

There is evidence from 27 systematic reviews that show brief counselling interventions are effective in reducing consumption in hazardous drinkers.

Six of the systematic reviews (all [++]¹⁻⁶) demonstrated that interventions delivered in primary care are effective in reducing alcohol-related negative outcomes. Evidence of effectiveness in other settings (emergency care, inpatient and outpatient settings and the workplace) was limited or inconclusive.

Behavioural-change components

Effective interventions described in the review for [NICE public health guidance 24](#) had components of BCT clusters ‘Social support’ and ‘Feedback and monitoring’ and specific examples of BCT: information about health consequences and BCT: information about emotional consequences. Some also described ‘self-control techniques’ that link to the BCT clusters of ‘Social support’ and ‘Feedback and monitoring’.

¹ Ashenden et al. 1997

² Ballesteros et al. 2004

³ Bertholet et al. 2005

⁴ Kaner et al. 2007

⁵ Poikolainen 1999

⁶ Whitlock et al. 2004

Evidence statement 1.17

There is evidence from 1 systematic review (+)¹ and 2 RCTs (1 [+]² and 1 [-]³) that 1 or more motivational interviews including reflection on the issues related to substance misuse (alcohol, tobacco or illicit drug use), in conjunction with goal setting to reduce or stop misusing substances, are effective at initiating behaviour change for (3 to 4 months) but are not effective in the medium or long term (at 12 months).

Behaviour change components

Goal setting was not described in detail and so only the cluster level categorisation was possible, BCT cluster 'goals and planning'. Motivational interviews were also not described in detail in the evidence tables but were coded as Intervention Function 2 Persuasion³ reported using pamphlets (BCT: adding objects to the environment), motivational interviewing (intervention function: persuasion) and verbal reinforcement from a physician (BCT: persuasive source).

1 Tait and Hulse 2003

2 McCambridge and Strang 2004

3 Oliansky et al. 1997

Evidence statement 1.18

The most effective interventions for reducing alcohol consumption in adults and vulnerable young people appear to be brief counselling interventions and extended brief interventions. For people classed as problem drinkers there is evidence from multiple systematic reviews supporting the effectiveness of

brief interventions delivered in primary care with a range of underlying behavioural change components (see evidence statements 1.16 and 1.17 for references and further details).

Behavioural change components

Brief and extended behavioural counselling interventions for vulnerable young people were heterogeneous in their content but contained 1 or more of the following components: verbal and or written advice and information (intervention function: education), feedback on alcohol consumption (BCT: feedback on behaviour), strategies to reduce consumption (not specific enough to code BCT), motivational interviewing (intervention function: persuasion) with some specifying use of 'cognitive behavioural techniques'.

Evidence statement 1.19

STIs

There is evidence from 2 RCTs (1 [++]¹ and 1 [+]²) that 1-to-1 individual counselling can reduce STIs in the long and very long term in people who are heterosexual but the effect may reduce after 6 months.

Condom use

The evidence review in NICE public health guidance 3 [Prevention of sexually transmitted infections and under 18 conceptions](#) identified 25 studies of mixed quality (++ to -) reporting condom use. Overall the results showed a marginally positive effect of 1-to-1 STI/HIV prevention interventions on increasing short- and long-term condom use. The effect may reduce over time. Six studies in men who have sex with men evaluated condom use or unprotected sex and 3 found a significant beneficial effect (2 [++]^{3,4} and [-]⁵).

HIV in men who have sex with men

There is evidence from a large US RCT⁴ that 1-to-1 counselling can lead to a non-significant reduction in HIV infection in men who have sex with men.

STIs in adolescents

There is evidence from a subgroup analysis of a single RCT (++)⁶ that 1-to-1 counselling sessions are effective in reducing STIs in adolescents (aged 12–18). There was insufficient evidence to determine the effect of 1-to-1 interventions on condom use in adolescents. There was little evidence that 1-to-1 interventions reduce the number of sexual partners of adolescents or promote abstinence.

Behaviour change components

Generally 1-to-1 discussions were not well described in the review evidence tables and so could not be coded. However, interventions in project RESPECT¹ were described in good detail as containing behaviour goal setting (BCT: goal setting [behaviour]), a risk reduction plan (BCT: action planning), and barriers to risk reduction (BCT: problem solving). Interventions² also contained elements of behavioural practice or rehearsal (BCT: behavioural practice/rehearsal); instructions on how to perform a behaviour (BCT: instructions on how to perform a behaviour) and information about health consequences (BCT: information about health consequences).

¹ Kamb et al. 1998

² Kalichman et al. 1996

³ Dilley et al. 2002

⁴ EXPLORE 2004

⁵ Gold and Rosenthal 1995

⁶ Bolu 2004

Evidence statement 1.20

There is evidence from 4 large RCTs (2 [+]^{1,2} and 2 [-]^{3,4}) that patient-delivered partner therapy plus additional information for partners reduces persistent or recurrent infections in women and men diagnosed with

gonorrhoea or *C. trachomatis* by approximately 5% compared with patient referral.

There is also evidence from 2 randomised controlled trials (both [-]^{5,6}) that giving patients diagnosed with *C. trachomatis* sampling kits for their partners can increase the number of partners who get tested when compared with getting the partners to visit their doctor for testing.

Behaviour-change components

One RCT¹ used 'treatment packages' that were delivered to partners by index patients and contained antibiotics (BCT: pharmacological support); drug information (intervention function: education); condoms (BCT: adding objects to the environment); study personal contact information (no coding possible); a brochure about sexually transmitted diseases (STDs) and information that care for STDs is free (intervention function: education). The package as a whole also represented BCT: adding objects to the external environment. Similar packages were used in another RCT³ with the addition of a phone number of a nurse for questions (BCT cluster 'Social support') and another RCT² also used a treatment package (BCT: adding objects to the environment) coupled with index patients (patients diagnosed with an STI) giving advice to their partners (intervention function: education).

¹ Golden et al. 2005

² Schillinger et al. 2003

³ Kissinger et al. 1998

⁴ Kissinger et al. 2005

⁵ Andersen et al. 1998

⁶ Ostergaard et al. 2003

Evidence statement 1.21

Evidence from 1 RCT (-)¹ and 1 non-randomised controlled study (+)² evaluated contraception advice and support in a clinic-based setting for younger people. The non-RCT² found a significant reduction in pregnancies and the RCT¹ showed a trend towards a reduction in the intervention group

compared with control but this was not significant. The evidence review for [NICE public health guidance 3](#) identified 4 studies that showed a statistically significant reduction in pregnancy (2 RCTs [+]^{3,4} and 1 RCT [-]⁵; 1 non-RCT²) and the other studies showed a general trend towards a reduction. Therefore, it concluded that 'there appears to be evidence that 1-to-1 interventions with adolescents can reduce pregnancies'. Multi-session nurse home-visiting appears particularly effective, especially with low-income disadvantaged women. However, more research is needed in this area with a focus on the under-18s and studies powered to detect a change in pregnancies.

Evidence from 7 studies reported the outcome of contraception use including oral contraception, emergency contraception and condom use (3 RCTs [++]⁶⁻⁸, 1 RCT [+]⁹ and 2 RCTs [-]^{10,11}; 1 non-RCT: [+]²). Two RCTs^{8,9} found 1-to-1 interventions with teenagers can improve contraception use in the long term. Of the 2 studies of advanced provision of emergency contraception (EC), 1 found an increase in the use of EC⁷ and 1 an increase in condom use⁶. In the other studies the general trend was towards an increase in contraception use although 1 non-RCT found the effect on contraception use was no longer significant at 12 months². Therefore, there is some evidence that 1-to-1 interventions with under-18s can increase contraception use. However, further research in this area is needed.

Behaviour-change components

The guidance described: how 1-to-1 sexual health advice should include how to prevent and/or get tested for STIs and how to prevent unwanted pregnancies; all methods of reversible contraception, including long-acting reversible contraception (LARC) (in line with [NICE clinical guideline 30](#)); how to get and use emergency contraception; and other reproductive issues and concerns.

Studies providing evidence for increasing condom use^{2,6-9} primarily described giving education and advice (intervention function: education) either alone or alongside providing contraception (BCT: adding objects to the environment).

Studies reporting effectiveness for reducing unwanted pregnancies also described the provision of advice (intervention function: education) and individual counselling (BCT: social support [unspecified]) about contraceptive methods coupled with provision of contraception (BCT: adding objects to the environment and BCT: pharmacological support)^{1,2}.

¹ Shlay 2003

² Winter 1991

³ Olds 2002

⁴ Olds 2004

⁵ O'Sullivan 1992

⁶ Gold 2004

⁷ Harper 2005

⁸ Quinlivan 2003

⁹ Danielson 1990

¹⁰ Boekeloo 1999

¹¹ Shlay 2003

Evidence statement 2.4.4

Moderate evidence from 3 interventions (1 [++]¹ and 2 [+]^{2,3}) suggests that multi-session dietary interventions that also address physical activity have a small, significant impact on eating habits among people with cardiovascular conditions. This effect was seen across several face-to-face delivery methods (individual:² SMD 0.22, 95% CI 0.15–0.29; group:³ SMD 0.46, 95% CI 0.05–0.88; combined:¹ SMD 0.44, 95% CI 0.29–0.60). All of the interventions reported use of BCTs social support (unspecified), goal-setting (behaviour), and action planning. Two of the interventions^{1,3} also reported use of BCT: problem-solving.

¹ Wood 2008

² Giannuzzi 2008

³ White 2012

Evidence statement 2.4.5

Inconsistent evidence was identified from 7 RCTs regarding the effectiveness of extended (1 [+]¹) and multi-session (6 [+]²⁻⁷) dietary interventions among people with type 2 diabetes.

An extended face-to-face intervention with print feedback¹ was no more effective than usual care at improving compliance with diet recommendations among patients with type 2 diabetes (SMD 0.41, 95% CI -0.005 to 0.83).

Two trials^{6,7} utilised multi-session interventions delivered primarily to a group, and were no more effective than usual care at changing dietary habits (SMD 0.19, 95% CI -0.10 to 0.49⁶; SMD 0.15, 95% CI -0.09 to 0.39⁷).

Three trials^{2,3,5} employed multi-session dietary interventions delivered face-to-face and remotely among diabetes patients. One trial⁵ resulted in a very small, non-significant effect (SMD 0.07, 95% CI -0.29 to 0.42), and the remaining 2 trials had small to medium significant effects (SMD 0.55, 95% CI 0.15–0.95²; SMD 0.37, 95% CI 0.14–0.60³).

Results from 1 trial⁴ suggest that an intervention of multiple counselling phone calls can have a small, significant effect on vegetable consumption among socioeconomically disadvantaged people with diabetes (SMD 0.20, 95% CI 0.01–0.39).

The 3 interventions resulting in significant effects²⁻⁴ all reported use of BCT: feedback on behaviour; this BCT was not reported in any of the non-significant interventions.

¹ Osborn 2010

² Clark 2004

³ Glasgow 2006

⁴ Eakin 2010

⁵ Keogh 2011

⁶ Thoolen 2009

⁷ Toobert 2010

Evidence statement 2.5.5

Strong evidence from 4 interventions (2 [++]^{1,2} and 2 [+]^{3,4}) suggests that physical activity interventions (with an additional dietary component) delivered over multiple sessions at either 1-to-1 or combined 1-to-1 and group level are effective at improving physical activity among people with cardiovascular conditions compared with usual care (SMD 0.14, 95% CI 0.01–0.27⁴; SMD 0.18, 95% CI 0.11–0.25³; SMD 0.48, 95% CI 0.16–0.80¹; SMD 0.86, 95% CI 0.75–0.98²).

All 4 interventions included use of BCT social support (unspecified). Three of the 4^{2–4} reported use of BCT: adding objects to the environment. The 2 interventions delivered 1-to-1 to people with cardiac conditions reported use of BCTs commitment and persuasive source. The 2 combined delivery interventions^{1,2} reported use of BCT: problem-solving.

¹ Vestfold Heartcare Study Group 2003

² Wood 2008

³ Giannuzzi 2008

⁴ Muniz 2010

Evidence statement 2.5.6

Strong evidence from 4 interventions (all [+]^{1–4}) suggests that multi-session group interventions are no more effective than comparators at improving physical activity among patients with cardiovascular conditions. All 4 interventions resulted in very small to small, non-significant effects (SMD 0.10, 95% CI –0.12 to 0.33²; SMD 0.00, 95% CI –0.30 to 0.30³; SMD 0.22, 95% CI –0.20 to 0.64⁴; SMD 0.07, 95% CI –0.18 to 0.32¹). All 4 interventions reported use of BCTs social support (unspecified) and goal-setting (behaviour).

¹ Moore 2006

² Smeulders 2009

³ Tingstrom 2006

⁴White 2012

Evidence statement 3.1.1

In this statement, 'being supportive' is defined as the supportive interaction of a professional with a patient. For example, in assessment, providing advice or assistance for behaviour change.

Evidence from 3 qualitative studies (all [++]¹⁻³) and 1 systematic review (++)⁴ suggests that 'being supportive' is a characteristic needed in delivering behaviour change interventions. The following attributes are commonly mentioned positively:

One of the qualitative studies¹ mentioned support for autonomy, by enhancing motivation, as an important contributor to feelings of competence.

One of the qualitative studies² reported that longer-term support after the end of the programme was appreciated by participants. This may reflect a misunderstanding of the need to promote a transition to self-directed activities.

One of the qualitative studies² reported that support and supervision for self-directed activities was positively mentioned in focus groups running alongside a trial of dietary and physical activity counselling.

One of the qualitative studies³ reported that smoking cessation counselling itself did not significantly boost perceived social support.

The systematic review⁴ gave weak evidence that additional telephone support increased smoking cessation in a Cochrane review of 31 nursing interventions for smoking cessation.

The lack of consistent effect in a systematic review may reflect the lack of consistent definition or coding of the BCTs that include social support. However, most interventions promote a supportive approach and this provider characteristic is appreciated by patients and recognised as important by providers.

¹Coghill 2009

² Casey 2009

³ McCarthy 2010

⁴ Rice 2008

Evidence statement 3.1.2

Evidence from 2 qualitative studies (1 [+]¹ and 1 [++]²) supports the concept of being motivating as a provider characteristic.

One study¹ reported that support for autonomy enhanced the motivation in a physical activity intervention and encouragement (verbal persuasion) offered by the counsellor was universally valued. The other study² found that clinician adherence to a motivating spirit rather than the specific techniques of motivational interviewing was felt to be an important competency to emphasise in training.

¹ O'Sullivan 2010

² Moyers 2005

Evidence statement 3.1.3

Evidence from 1 qualitative study (++)¹ supports the concept of being empathetic as a provider characteristic. Empathy was one of 6 global clinical characteristics of the therapist coded along with acceptance, egalitarianism, warmth, genuineness and overall motivational interviewing 'spirit'.

¹ Moyers 2005

Evidence statement 3.2.1

Evidence from 1 qualitative study (++)¹, 1 systematic review (+)² and 1 review (+)³ suggest that professional knowledge is a competence recognised as a facilitator of behaviour change. Professional knowledge, in this instance, is defined as knowledge and awareness of risks and outcomes of conditions, behaviour change interventions, or familiarity with theory and local policy and context.

In the qualitative study¹, diabetes educators in Canada said their own lack of knowledge was a barrier to personal efficacy in counselling:

In the systematic review², professional knowledge and familiarity with theory in an overview of systematic reviews for improving healthy lifestyle (physical activity, healthy eating and smoking cessation) in Holland was associated with effectiveness.

In the review³, professionalism (for example, knowledge of health and well-being and its different aspects) is listed as a competence needed to deliver behavioural support for smoking cessation.

¹ Dillman 2010

² Van Achterberg 2010

³ Michie 2011

Evidence statement 3.2.2

Evidence from 4 qualitative studies (all [++]¹⁻⁴), 1 review (+)⁵ and 2 systematic reviews (1 [++]⁶ and 1 [+]⁷) suggests that the ability to communicate information is a skill recognised as a facilitator for effective behaviour change interventions.

One qualitative study¹ points out communicating information about a healthy lifestyle and providing insight into behaviours¹ as being important. Another² found that personal knowledge influenced the ability of people with type 1 diabetes to self-manage, and brought a sense of being in control of their disease. Another³ showed that telephone delivery of information by community nurses and COPD health-mentors was acceptable, teachable and increased knowledge about the effects of chronic obstructive pulmonary disease. The fourth⁴ reported that imparting knowledge at encounters referred to as teachable moments, when reception to information is heightened by disease or other health intervention, may provide a target for intervention design:

One of the systematic reviews⁷ reported that in a Dutch overview of systematic reviews for improving healthy lifestyle communication of risk was found in 52% of effective interventions.

There are some cautions in the qualitative literature. One systematic review⁶ found that information provided by lifestyle advisors had little impact on health knowledge, behaviours and outcomes despite high levels of acceptability, although this may be specific to the type of training received by lifestyle advisors and may not apply to other health professionals. The review⁵ stated that the ability to elicit and answer questions was considered an important general aspect of an intervention by a consensus group but was not listed as a specific technique.

¹ Jansink 2010

² Murphy 2011

³ Walters 2012

⁴ Thomsen 2009

⁵ Michie 2011

⁶ Carr 2011

⁷ Van Achterberg

Evidence statement 3.3.1

Evidence from 1 qualitative study (++)¹ suggests that the assessment of individuals and use of screening tools is a competence recognised as a facilitator of behaviour change. The study identified inadequate alcohol assessment protocols and poor integration with the electronic medical record as a barrier to a nurse-delivered alcohol screening, brief intervention and referral to treatment programme.

The facilitators identified to improve the uptake of assessment and screening for alcohol disorders included the enhanced electronic medical record.

¹ Broyles 2012

Evidence statement 3.3.2

Evidence from 3 qualitative studies (all [++]¹⁻³) and 2 systematic reviews (both [++]^{4,5}) suggests that referral for treatment needs skill. Diabetes educators identified a lack of skills in making appropriate exercise related referrals and requested training in this¹. Suggesting or signposting support by others was a

key facilitator to lifestyle behaviour change in individuals at high risk of cardiovascular events^{2,3} and in encouraging physical activity and dietary interventions in people at risk of diabetes^{4,5}.

Evidence from 1 systematic review (+)⁶ suggests that the precise nature of the support offered is important because the BCT 'plan social support/social change' was a technique associated with lower self-efficacy and lower physical activity effect.

¹ Dillman 2010

² Murray 2012

³ Robinson 2010

⁴ Greaves 2011

⁵ van Achterberg 2010

⁶ Williams 2011

Evidence statement 3.3.3

Evidence from 3 qualitative studies (all [++]¹⁻³) suggests that skill in developing participant motivation is a necessary competence. 'Skills in developing motivation and enabling action' are defined as taught skills in reflective listening, empathy, building self-efficacy and providing feedback. The capacity to implement behaviour change in a manner consistent with its underlying philosophy and the ability to structure consultations are encompassed by this evidence statement.

The aspects perceived as important for this skill are: monitoring for an exercise programme¹; training for practice nurses in how to overcome a perceived lack of motivation in their patients²; and a shift towards collaboration and support as determinants of self-management (self-efficacy)³.

There is evidence from 1 intervention study (+)⁴ that 'enabling action' as a separate skill (encompassing goal setting, action planning and coping planning) often follows developing motivation but is associated with more effect if the 2 are administered alongside each other.

¹ Casey 2009

² Jansink 2010

³ Murphy 2011

⁴ French 2012

Evidence statement 3.3.4

Evidence from 1 systematic review (++)¹ supports providing feedback on performance and prompting review of behavioural goals in healthy eating and physical activity interventions. These techniques, derived from control theory, were significantly more effective at inducing behaviour change than those not derived from this theory.

¹ Michie 2009

Evidence statement 3.3.5

Evidence from 1 focus group study (++)¹ for brief alcohol interventions delivered by nurses suggests that there are barriers and facilitators to competence in delivering brief interventions: Barriers were:

- lack of alcohol-related knowledge and skills
- limited interdisciplinary collaboration and communication around alcohol-related care
- inadequate alcohol assessment protocols and poor integration with the electronic medical record
- concerns about negative patient reaction and limited patient motivation to address alcohol use
- questionable compatibility of screening, brief intervention and referral to treatment with the acute care paradigm and nursing role
- logistical issues (for example, lack of time or privacy).

The facilitators of nurse-delivered screening, brief intervention and referral to treatment focused on provider- and system-level factors related to:

- improved provider knowledge, skills, communication, and collaboration
- expanded processes of care and nursing roles

- enhanced electronic medical record features.

¹ Broyles 2012

Evidence statement 3.3.6

Evidence from 1 qualitative study (+)¹, 2 systematic reviews (1 [+]² and 1 [++]³) and 2 reviews (both [+]^{4,5}) suggests that action planning, goal setting and problem solving are skills appreciated by providers. Although the exact training component was often not specified, training was thought to be needed in: goal setting; action planning and problem solving; self-management support theory and practice. These helped participants 'develop and personalise behaviour change strategies'¹.

Action planning enhanced self-efficacy scores for patients².

Goal setting and prompting review of behavioural goals, but not action planning itself was associated with effectiveness³.

Collaborative priority and goal setting along with collaborative problem solving is listed in a qualitative review of reviews and meta-analyses derived from a thematic content analysis⁴.

Problem solving was also listed in the consensus building study that identified the competencies needed to deliver behavioural support for smoking cessation as, 'maximising self-regulatory capacity and skills (such as the ability to facilitate barrier identification and problem solving)⁵.

¹ Walters 2012

² Williams 2011

³ Michie 2009

⁴ Battersby 2010

⁵ Michie 2011

Evidence statement 3.3.7

Evidence from 2 qualitative studies (both [++]^{1,2}) suggest encouraging self-management as a competency.

Interviews with 40 people with type 1 diabetes in Ireland¹ found that the capacity to successfully self-manage their condition needed a collaborative supportive relationship between providers and people with diabetes. These were identified as important determinants of self-management.

Self-management support was successfully taught as a skill in a telephone health-mentoring intervention to nurses².

¹ Murphy 2011

² Walters 2012

Evidence statement 3.3.8

Evidence from 1 review (++)¹ suggests 3 competencies are needed to deliver group counselling behavioural support for smoking cessation, the ability to:

- encourage group discussions
- encourage group tasks that promote interaction and/or bonding
- encourage mutual support.

These were cited in 2 or more source documents and at least two RCTs:

¹ Michie 2009

Evidence statement 3.3.9

Evidence from 2 systematic reviews of randomised controlled trials (1 of complex behaviour interventions for obese adults with obesity related comorbidities [++]¹ and 1 of behaviour change techniques in healthy eating and physical activity interventions [++]²) suggests that increasing the numbers of identified BCTs is not necessarily associated with better outcomes.

Advanced skills in maintaining change (such as, skills in relapse prevention and prompting practice or follow up prompts) could be linked to more successful interventions.

The competence to use prompts and to focus on relapse prevention by managing obstacles could be important to obesity as a behaviour change target because it needs a prolonged change in habits.

The experience of patients or providers in providing prompts and cues was not commonly described in the qualitative research identified.

¹ Dombrowski 2010

² Michie 2009

Expert papers

Expert papers 1–14.

Economic analysis

Review 1 identified 79 interventions dealing with 6 behaviours: smoking, diet, physical activity, alcohol, sexual health and multiple health targets. All interventions fall well below the accepted £20,000–£30,000 costs per quality-adjusted life year (QALY) threshold. However, sensitivity analyses suggest that some may have incremental cost-effectiveness ratios (ICERs) above this threshold. In this review, sexual health interventions were least cost effective but no other characteristics or behaviour-change techniques were related to cost-effectiveness estimates.

Review 2 identified 251 interventions across the 6 behaviours, of which 102 provided cost–utility estimates (£/QALY). Using the upper estimate and lower threshold (the most cautious approach), 85% of interventions were identified as cost effective. Using the lower estimates, smoking cessation interventions were significantly more cost effective than interventions targeting multiple behaviours.

Across all interventions, those targeting the general population had better cost–utility results and were more likely to be cost effective than those aimed at vulnerable populations. Regression analyses across, as well as within, behaviours suggests there is little or no consistent association between the presence of an individual behaviour-change technique (or cluster of behaviour-change techniques) and an intervention being cost effective.

The authors of the reviews state that the findings need to be interpreted cautiously given:

- the different search strategies for reviews 1 (based on interventions already assessed by NICE as cost effective) and 2 (based on the search strategy used for evidence review 2)
- reliance on incomplete information in published papers
- heterogeneity in economic analyses
- lack of consensus for a definition of ‘choice architecture’
- bias in reporting of study findings.

10 Gaps in the evidence

The Programme Development Group (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. There is a lack of evidence on the effectiveness or cost-effectiveness of using choice architecture interventions to change alcohol, smoking and physical activity-related behaviours (with the exception of choice architecture interventions to promote stair use). In particular, there is a lack of UK-based primary research exploring the differential impacts of such interventions.

(Source: Expert paper 8)

2. There is a lack of evaluation, using appropriate research designs, of choice architecture interventions used in commercial settings to determine their effectiveness, cost-effectiveness or usability in non-commercial settings.
3. There is a lack of review-level work and primary research examining the effectiveness of individual behaviour-change techniques.

(Source: Expert paper 14)

4. There is a lack of evidence addressing what the most effective approach is to dealing with multiple behaviours (for example, if someone smokes, consumes alcohol above recommended weekly limits and is physically inactive). Specifically:
 - a) Should behaviours be approached in sequence or in combination?
 - b) If multiple behaviours are addressed in combination, how is this decided? For example, is it based on the types of behaviour? How dependent is it on the person's capability, opportunity and motivation?

(Source: Expert paper 14)

5. There is a lack of evidence prospectively investigating the relationship between practitioner training, subsequent competences and behaviour-change interventions. In particular, studies have not looked at the effect size of competencies or training.

(Source: Evidence review 3)

6. There is limited research on the training needed to address barriers to delivering behaviour-change interventions.

(Source: Evidence review 3)

7. There is a lack of published research that provides details of the theoretical basis of an intervention (beyond the naming of a theory). There is a lack of evidence on how theoretical accounts of behaviour change can be used to guide evidence synthesis (combining multiple sources of quantitative evidence, such as meta-regression, meta-analysis) of behaviour-change interventions.

(Source: Evidence review 2)

8. There is a lack of recent evidence (post-2003) on behaviour-change techniques used to influence sexual behaviour. In particular, there is a lack of UK randomised control trials with populations aged 16 and over.

(Source: Evidence review 2)

11 Membership of the Programme Development Group (PDG) and the NICE project team

Programme Development Group

PDG membership is multidisciplinary. The Group comprises public health practitioners, clinicians, local authority officers, teachers, social care professionals, representatives of the public, academics and technical experts as follows.

Charles Abraham

Professor of Behaviour Change, Peninsula College of Medicine and Dentistry, University of Exeter

Fiona Adshead

Independent consultant

Deborah Arnott

Chief Executive, Action on Smoking and Health

Deryn Bishop

Health Behaviour Specialist, The Training Tree

Damian Edwards

Director of Behavioural Interventions, National Obesity Forum

Alan Higgins

Director of Public Health, Oldham Council

Ruth Jepson

Senior Scientific Advisor, Scottish Collaboration for Public Health Research and Policy

Paul Lincoln (Chair)

Chief Executive Officer, UK Health Forum

Annice MacLeod

Community member

Susan Michie

Professor of Health Psychology, Division of Psychology and Language Sciences, University College, London

Simon Murphy

Reader, Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer), Cardiff School of Social Sciences, Cardiff University

Margaret Rings

Senior Health Advisor, Department of Genitourinary Medicine, Oxford University Hospitals Trust (OUH), Oxford

Jennifer Roberts

Professor of Economics, Department of Economics, University of Sheffield

Graham Rushbrook

Director, RBE Associates

Stephen Sutton

Professor of Behavioural Science, School of Clinical Medicine, University of Cambridge

Malcolm Ward

Principal Health Promotion Specialist, Public Health Wales

Philip Whelan

Community member – until February 2013

Ann Williams

Senior Improvement Officer, Liverpool City Council

Co-opted members

Rona Campbell

Professor of Public Health Research, School of Social and Community Medicine, University of Bristol

Pam Rees

Community member – from February 2013

NICE project team

Mike Kelly

CPHE Director

Catherine Swann

Associate Director

Charlotte Haynes

Lead Analyst

Chris Carmona

Analyst

Rachel Kettle

Analyst

Suzi Peden

Analyst

Lesley Owen

Technical Adviser, Health Economics

Helen Gollins

Specialty Registrar, Public Health

Victoria Axe

Project Manager

Denise Jarrett

Coordinator

Sue Jelley

Senior Editor

Alison Lake

Editor

12 About this guidance

Why is this guidance being produced?

This is a partial update of the National Institute for Health and Care Excellence (NICE) public health guidance 6, [Behaviour change at population, community and individual levels](#).

The guidance should be implemented alongside other guidance and regulations (for more details see Implementation, below, and [Related NICE guidance](#) respectively).

How was this guidance developed?

The recommendations are based on the best available evidence. They were developed by the Programme Development Group (PDG).

Members of the PDG are listed in [Membership of the Programme Development Group](#).

For information on how NICE public health guidance is developed, see the NICE [public health guidance process and methods guides](#).

What evidence is the guidance based on?

The evidence that the PDG considered included:

- Evidence reviews:
 - Review 1: ‘Individual-level behaviour change: Review of current NICE guidance and recommendations’ was carried out by Bazian Ltd and University College London. The principal authors were: Rob Davies, Joelle Kirby, Alan Lovell, Alicia White, Rob Cook and Benjamin Gardner.
 - Review 2: ‘Individual-level behaviour change: Review of evidence of effectiveness of interventions and behaviour-change techniques in individual level interventions’ was carried out by Bazian Ltd and University College London. The principal authors were: Sarah Caton, Alicia White, Craig Whittington, Alan Lovell, Joelle Kirby, Elly O’Brien, Anelia Boshnakova, Alex McAleenan, Alex Lipman, Benjamin Gardner and Rob Cook.
 - Review 3: ‘Individual-level behaviour change: A qualitative review of studies describing the skills base needed to deliver behaviour change interventions or techniques’ was carried out by Bazian Ltd, University of Southampton and University College London. The principal authors were: Kath Barnard, Rob Cook, Alan Lovell, Joelle Kirby, Alicia White and Benjamin Gardner.
- Reviews of economic evaluations:
 - Review 1: economic evaluation: ‘Behaviour change update: Stage 1. Behaviour-change technique (BCT) analysis of existing, cost-effective interventions’ was carried out by

University College, London. The principal authors were: Lion Shahab, Emma Beard and Benjamin Gardner

- Review 2 economic evaluation: ‘Behaviour change update: Stage 3. BCT analysis of behaviour change interventions reported in studies of cost effectiveness’ was carried out by University College, London. The principal authors were: Lion Shahab, Fabi Lorencatto and Emma Beard.

- Expert testimony:

- Expert paper 1 ‘Behaviour change – identifying effective elements of behaviour change interventions’ by Charles Abraham, University of Exeter
- Expert paper 2 ‘Mechanisms and processes of behaviour change’ by Ray Pawson, University of Leeds
- Expert paper 3 ‘Behaviour change and addiction’ by Robert West, University College, London
- Expert paper 4 ‘Behaviour change – policy and context’ by Laura Haynes, Cabinet Office
- Expert paper 5 ‘Behaviour change – Implementation and Maintenance’ by Colin Greaves, University of Exeter
- Expert paper 6 ‘Behaviour change – Complex and Multiple health-related behaviours’ by David Buck, The King’s Fund
- Expert paper 7 ‘Behaviour change – Local Authorities and Public Health’ by Alan Higgins, NHS Oldham and Rachel Flowers, Newham Council
- Expert paper 8 ‘Behaviour change: Choice architecture, economic environment and the ethics/Acceptability of such techniques’ by Theresa Marteau, Behaviour and Health Research Unit
- Expert paper 9 ‘Behaviour change – Complex and Multiple Interventions’ by Rona Campbell, University of Bristol
- Expert paper 10 ‘Behaviour change – Evidence into practice’ by Deryn Bishop, The Training Tree

- Expert paper 11 ‘Behaviour Change Qualifications’ by Diana Moss, Royal Society of Public Health.
- Expert paper 12 ‘Behaviour Change Competencies’ by Diane Dixon, University of Strathclyde
- Expert paper 13 ‘Behaviour change – policy and context’ by Jessica Allen, University College, London
- Expert paper 14 ‘evidence of effectiveness of specific behaviour change techniques’ by Susan Michie, University College, London

In some cases the evidence was insufficient and the PDG has made recommendations for future research.

Status of this guidance

This is draft guidance. The recommendations made in section 1 are provisional and may change after consultation with stakeholders ([listed on our website](#)).

This document does not include all sections that will appear in the final guidance. The stages NICE will follow after consultation (including fieldwork) are summarised below.

- The Group will meet again to consider the comments, reports and any additional evidence that has been submitted.
- After that meeting, the Group will produce a second draft of the guidance.
- The draft guidance will be signed off by the NICE Guidance Executive.

The key dates are:

Closing date for comments: 31 July 2013.

Next PDG meeting: 16–17 September 2013.

Implementation

NICE guidance can help:

- Commissioners and providers of NHS services to meet the requirements of the [NHS outcomes framework 2013–14](#). This includes helping them to deliver against domain one: preventing people from dying prematurely.
- Local health and wellbeing boards to meet the requirements of the [Health and Social Care Act \(2012\)](#) and the [Public health outcomes framework for England 2013–16](#).
- Local authorities, NHS services and local organisations determine how to improve health outcomes and reduce health inequalities during the joint strategic needs assessment process.

NICE will develop tools to help organisations put this guidance into practice. Details will be available on our website after the guidance has been issued.

Updating the recommendations

This section will be completed in the final document.