NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

PUBLIC HEALTH DRAFT GUIDANCE

Managing overweight and obesity in adults – lifestyle weight management services

Introduction: scope and purpose of this draft guidance

What is this guidance about?

This guidance makes recommendations on the provision of effective multi-component lifestyle weight management (tier 2) services for overweight and obese adults.

The recommendations cover:

- integrated approach
- minimising harm
- raising awareness of lifestyle weight management services among commissioners
- addressing adults' expectations of a lifestyle weight management programme
- providing information for adults considering a lifestyle weight management programme
- core components of lifestyle weight management services: weight loss
- core components of lifestyle weight management services: maintaining weight loss
- commissioning lifestyle weight management programmes
- referrals to lifestyle weight management programmes
- improving programme uptake, adherence and outcomes
- training, knowledge and skills: GPs and other health professionals
- training, knowledge and skills: programme staff

- monitoring and evaluation: programmes
- monitoring and evaluation: local provision.

This guidance does not cover:

- services that focus on preventing obesity (usually called tier 1 services)
- pharmacological treatments
- specialist weight management services (usually called tier 3 services)
- surgical treatments for obesity (usually called tier 4 services)
- the additional needs of adults with a range of complex conditions
- children.

(See Related NICE guidance for other recommendations that may be relevant to managing obesity among adults, children and young people.)

The term 'lifestyle weight management services' refers to multi-component lifestyle weight management approaches, that is programmes that aim to change someone's behaviour to reduce their energy intake and encourage them to be more physically active. Although local definitions vary, these are usually called tier 2 services and are just one part of a comprehensive approach to preventing and treating obesity.

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, health professionals and providers of lifestyle weight management programmes. The guidance may also be of interest to overweight and obese adults, their families and other members of the public.

Contents

1 Draft recommendations

The Programme Development Group (PDG) considers that the recommendations in this guidance are cost effective. For more details see section 3.

The evidence statements underpinning the recommendations are listed in The evidence.

See also Overweight and obese adults – lifestyle weight management 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

Implementing the recommendations can help reduce the risk of the main diseases associated with obesity. These include: coronary heart disease (CHD), stroke, hypertension, osteoarthritis, type 2 diabetes and cancers of the breast and kidney.

The guidance was not specifically developed to help manage conditions that increase the risk of, or are associated with, obesity: clinical judgement will be needed to determine whether the recommendations are appropriate for people with associated conditions (comorbidities). The guidance does not consider the additional needs of adults with complex needs (such as those who are obese and also have alcohol or mental health problems).

The recommendations should be considered alongside NICE guidance on obesity identification and management and the local strategic approach to obesity. Implementation should follow the usual principles of person-centred care.

Assessing adults who are overweight or obese

Adults are assessed to see if they are overweight or obese using their body mass index (BMI). The following table shows the cut-off points for a healthy weight or being overweight or obese:

Classification	**BMI (kg/m^2)**
Healthy weight	18.5–24.9
Overweight	25–29.9
Obesity I	30–34.9
Obesity II	35–39.9
Obesity III	40 or more

BMI is a less accurate indicator of adiposity in adults who are highly muscular, so it should be interpreted with caution in this group.

Waist circumference can also be used to assess whether someone is at risk of health problems because they are overweight or obese (up to BMI 35, see recommendation 1.2.2.9 in the NICE clinical guideline on obesity). For men, a waist circumference of less than 94 cm is low risk, 94–102 cm is high and more than 102 cm is very high risk. For women, a waist circumference of less than 80 cm is low risk, 80–88 cm is high and more than 88 cm is very high risk.

The use of lower BMI or waist thresholds, as a trigger to reduce the risk of conditions such as type 2 diabetes, have been recommended for black African, African–Caribbean and Asian groups (see BMI and waist circumference – black, Asian and minority ethnic groups).

Whose health will benefit?

Adults who are overweight or obese.

Recommendation 1: Integrated approach

Who should take action?

Local authorities, working with other local service providers, clinical commissioning groups and health and wellbeing boards.

What action should they take?

- Ensure there is an integrated approach to the prevention and management of obesity. Systems should be in place to allow people to progress easily through the local obesity pathway. They should receive referrals or support within (or across) the different service tiers as necessary, including to and from lifestyle weight management programmes.

- Identify local services, facilities or groups that address the wider determinants of health (such as community walking groups) within the local obesity pathway.

- Ensure staff in other local services (such as NHS Health Check and services for smoking cessation and type 2 diabetes services) are aware of and make referrals to their lifestyle weight management service.

- Ensure lifestyle weight management services for adults meet local needs identified by the joint strategic needs assessment (JSNA) and other local intelligence.

Recommendation 2: Minimising harm

Who should take action?

- Clinical commissioning groups.
- GPs and other health professionals.
- Health and wellbeing boards.
- Local authorities.
- Providers of lifestyle weight management services.
- Public Health England.

What action should they take?

- Be aware of the effort needed to lose weight and avoid further weight gain and the stigma adults who are overweight or obese may feel or experience. Ensure the tone and content of all communications or dialogue is respectful and non-blaming. The terminology used to describe the person's condition should respect individual preferences.

- Ensure equipment and facilities meet the needs of most adults who are overweight or obese. For example, referrers to, and providers of, lifestyle weight management services should ensure large blood pressure cuffs are available and any new scales can accurately weigh the heaviest patients seen by the service.

- Only measure the waist circumference of people with a BMI less than 35 kg/m^2.

- Respect individual preference for privacy (for example, at a regular weigh-in).

Recommendation 3: Raising awareness of lifestyle weight management services among commissioners

Who should take action?

- Clinical commissioning groups.
- Health and wellbeing boards.
- Local authorities.
- Public Health England.

What action should they take?

- All those commissioning local lifestyle weight management services should be aware of:
    - the local prevalence of overweight and obesity, including any differences between subgroups
    - the likely health benefits for overweight or obese adults who permanently lose even a relatively small amount of weight or avoid further weight gain
    - the local strategic approach to prevention and helping people who are already overweight or obese, including the role of local lifestyle weight management services.

- Include sources of information and advice about local lifestyle weight management services in any communications about being overweight or obese. This includes information and advice provided by GPs, practice nurses and pharmacists.

Recommendation 4: Addressing adults' expectations of a lifestyle weight management programme

Who should take action?

- GPs and other health professionals advising or referring patients.
- Providers of lifestyle weight management services.

What action should they take?

Explain to adults who are considering a lifestyle weight management programme:

- how much motivation and commitment is needed to lose weight and maintain weight loss
- no programme holds the 'magic bullet' (that is, no programme can guarantee success)
- the importance of making gradual, long-term changes to their eating habits and physical activity (making too many changes at once may be difficult to sustain and increase risk of relapse)
- how much weight they might realistically expect to lose in total and on a weekly basis if they adhere to the programme
- the substantial health benefits of losing at least 5–10% of their weight and maintaining that loss
- the benefits of maintaining a loss of even relatively small amounts (for example, 3%) of weight
- the benefits of preventing any further weight gain.

Recommendation 5: Providing information for adults considering a lifestyle weight management programme

Who should take action?

- GPs and other health professionals advising or referring patients.
- Providers of lifestyle weight management services.

What action should they take?

Ensure adults considering a lifestyle weight management programme are able to make an informed choice about whether or not to proceed by discussing:

- any previous or ongoing strategies to manage their weight (acknowledge what the person has already achieved)
- any negative experiences of weight management programmes
- any concerns they may have about joining the programme, the process of change or of meeting their goals
- the likelihood that successful weight management will be an ongoing challenge for which they may need long term support
- the benefits of preventing further weight gain, being more physically active and adopting a healthier diet (whether or not they decide to start the programme)
- sources of long-term support (for example, from their practice nurse, local support group or weight management programme)
- other local services that may provide support (for example, local walking or gardening groups)
- any financial costs (after the referral period).

Recommendation 6: Core components of lifestyle weight management services: weight loss

Who should take action?

- Providers of lifestyle weight management services.
- Commissioners of lifestyle weight management services.

What action should they take?

Lifestyle weight management services should be recommended or commissioned only if they:

- Focus on long-term lifestyle change (weight loss that is maintained over the long term or prevention of further weight gain), rather than temporary weight loss.
- Set achievable goals for weight loss over the course of the programme – including within the first few weeks, after 12 weeks and at 1 year (see recommendation 8).
- Ensure staff are trained by a multidisciplinary team, including input from a registered dietitian, clinical psychologist and a qualified physical activity instructor.
- Ensure programmes are multi-component.
- Set a clear energy intake or calorie reduction target, tailored to individual needs. Note that an approach that is not costly to follow and that avoids 'banning' specific foods or food groups is preferable. One-to-one contact or advice from a registered dietitian may be beneficial, but is not essential.
- Encourage people to reduce their sedentary behaviour and adopt physical activities that can be easily continued after the programme has ended (for example, walking).
- Any supervised physical activity sessions should be led by an appropriately qualified physical activity instructor . Instructors who work with individuals as part of a lifestyle weight management programme (or to support their involvement in the programme) should have completed at least a level 3 exercise qualification. They should also belong to the Register of Exercise Professionals.
- Use a variety of behaviour-change methods. This should include: goal setting, problem solving; self-monitoring of weight or related behaviours;

feedback on performance; instruction on how to perform behaviour; and planning to provide social support or to make changes to their social environment.

- Consider the needs of different subgroups and tailor programmes accordingly. For example, provide women- or men-only sessions as necessary, provide sessions at a range of times and in venues with good transport links, and consider providing childcare for attendees.
- Monitor and review participants' goals throughout the programme.
- Monitor weight and measures of behaviour change for at least 12 months (see recommendation 13).
- Adopt a respectful, non-blaming approach (see recommendation 2)

Recommendation 7: Core components of lifestyle weight management services: maintaining weight loss

Who should take action?

- Providers of lifestyle weight management services.
- Local authority commissioners.

What action should they take?

Lifestyle weight management services should be commissioned or recommended only if they provide advice and support for the maintenance of weight loss (or continued weight loss, as appropriate). They should:

- Foster independence and self-management.
- Provide information or opportunities for ongoing support once the programme has ended.
- Stress the impact of both healthy eating and physical activity on long-term weight loss maintenance.

- Encourage healthy eating behaviours that are sustainable in the long term and emphasise the wider benefits of eating a healthy, low fat diet.
- Encourage ways of being more physically active and less sedentary that can be easily continued after the programme has ended (for example, walking). The wider benefits should also be emphasised.
- Provide support and advice on how to maintain their new behaviours.
- Consider the needs of different subgroups and tailor advice accordingly.
- Adopt a respectful non blaming approach (see recommendation 2).

Recommendation 8: Commissioning lifestyle weight management programmes

Who should take action?

- Health and wellbeing boards.
- Public Health England.
- Local authorities.

What action should they take?

- Commission only lifestyle weight management programmes that meet the core components for weight loss and weight-loss maintenance (see recommendations 6 and 7).
- Commission group and individual programmes to meet the needs and preferences of different subgroups. Refer to best practice guidance as appropriate.
- Ensure lifestyle weight management programmes complement activities that address the wider determinants of health. This includes, for example, providing safe cycle and walking routes or restrictions in planning permission for takeaways and other food and drink retail outlets in specific areas.

- Ensure contracts state who will undertake routine evaluation and what measures will be collected (see recommendation 13). (Adherence to data protection and information governance requirements should not stop services from providing this data.)

- At the outset, discuss the post-programme monitoring process with providers and the potential to report weight and indicators of behaviour change at 12 months (see recommendation 13). Also discuss options for overcoming any potential problems or additional costs.

- Contracts should clearly specify the geographic areas and subgroups that the service should cover.

- Ensure services make adequate provision for disadvantaged groups. Discuss with referrers and providers the additional efforts that may be needed to get specific subgroups involved.

- Ensure a range of local services support people who need to maintain their weight or weight loss. Consider providing support to establish or expand local support groups or networks that may encourage self-management.

- De-commission programmes that do not meet agreed uptake, provision or outcome targets.

Recommendation 9: Referrals to lifestyle weight management programmes

Who should take action?

- GPs and other health professionals advising about, or referring people to, lifestyle weight management programmes.

What action should they take?

- Identify patients eligible for referral to lifestyle weight management services by measuring their body mass index (BMI) and any other locally agreed risk factors.

- Focus mainly on adults with a BMI over 30 kg/m² (there should be no upper BMI or upper age limit for referral). Also focus on people identified as overweight or obese through the NHS Health Check or other services. (Examples of the latter include postnatal or smoking cessation services.)

- Take people's preferences into account if possible (for example, they may prefer an individual rather than a group weight management programme). Also take their previous experience of such programmes into account, along with their motivation to change.

- Refer people who have no preference to a group programme because, on average, these tend to be more cost effective.

- Ensure people who are overweight or obese but are not referred (for whatever reason) have an opportunity to discuss and reconsider attending a programme in the future.

- Ensure people understand that GPs, practice nurses or other health professionals can provide ongoing support, whether or not they are referred to a lifestyle weight management programme.

- Seek informed consent from participants for information sharing between the referrer and the service provider. Explain that the purpose is to ensure consistent, ongoing support and care and to support monitoring or evaluation of the service.

- Give people the opportunity for a re-referral, as necessary, given that weight management is a long-term process. Use clinical judgement taking into account the person's circumstances, previous experiences of weight management and motivation to change.

Recommendation 10: Improving programme uptake, adherence and outcomes

Who should take action?

- Providers of lifestyle weight management services.

- GPs and other health professionals advising or referring patients.

What action should they take?

- Put systems in place to share any relevant information in confidence about participants referred to lifestyle weight management programmes. This should be in line with information governance and data protection requirements. The aim is to identify any problems related to uptake and adherence to the programme and aid monitoring of longer term weight outcomes. It will also improve opportunities to provide people with ongoing support.

- Providers should get the consent of participants to send feedback on their progress to the referring GP or health professional.

- Assess and discuss with participants' their motivation to change and other issues that may affect their likelihood of benefiting from the programme. Discussions should take place at the outset and throughout the programme.

- Put processes in place to identify participants who are not benefiting from the programme. They should be identified as early as possible. Consider their progress in terms of weight, behaviour change, attendance and motivation. Agree what should happen next (for example, referral to another service, planned exit or, re-referral at a future date).

- Use the regular weigh-in as an indicator of change and motivational tool.

Recommendation 11: Training, knowledge and skills: GPs and other health professionals

Who should take action?

- Professional bodies and those responsible for setting competences and designing continuing professional development programmes for health professionals.

What action should they take?

- Train GPs and other health professionals to identify when to raise weight management with a patient and to do so confidently, but with empathy. They should understand why many adults have difficulty managing their weight and the experiences that they may face in relation to it. This includes considering the impact of their own attitudes to, and concerns about, their own weight.

- Train GPs and other health professionals to accurately measure and record height and weight, to determine body mass index (BMI) and to accurately measure waist circumference.

- Train GPs and other health professionals to assess patient motivation to change and likelihood of benefiting from a lifestyle weight management programme. They should be able to help patients make an informed decision about the best weight management option for them and should be able to refer them to the most appropriate service.

- Train GPs and other health professionals to identify people with more complex needs and how to refer them to appropriate services.

- Train GPs and other health professionals to provide ongoing support and encouragement. This includes the ability to encourage people to self-manage their weight in the long term. It also includes the ability to identify when someone may benefit from re-referral to a lifestyle weight management programme.

Recommendation 12: Training, knowledge and skills: programme staff

Who should take action?

- Providers and staff of lifestyle weight management services.
- Training organisations.

What action should they take?

- Develop training for lifestyle weight management programme staff with qualified professionals such as clinical psychologists, registered dietitians and qualified physical activity specialists.

- Ensure training addresses staff attitudes to, and concerns about, their own weight.

- Train programme staff to communicate effectively and work collaboratively with participants. They should be able to adopt a non-judgmental approach. This means they should be able to:
    - understand the reasons why many people have difficulty managing their weight, the experiences they may face in relation to their weight and the anxieties they may have about attending the programme
    - be clear and open about what the programme involves, to enable participants to make an informed choice before embarking on the programme.

- Train staff to deliver multicomponent programmes that cover weight management, healthy eating, safe physical activity and behaviour-change strategies, as appropriate. This should include the ability to:
    - tailor interventions to individual needs (considering, for example, any specific language or literacy needs)
    - review progress and provide constructive feedback to participants and referrers, identify possible reasons for relapse and use problem-solving techniques to address these
    - collect information about people's weight, eating and physical activity behaviours to support monitoring (in line with information governance and data protection requirements).

- Train programme staff to:
    - accurately measure and record height and weight, to determine body mass index (BMI) and to accurately measure waist circumference

  - be aware of common medical problems that are associated with overweight and obesity
  - be able to identify when a participant should be referred to their GP for potential onward referral to other services (for example, specialist weight management or other specialist services, such as alcohol counselling).

- Ensure staff leading supervised physical activity sessions are qualified and insured (for example, they should be trained to level 3 or 4 on the register of exercise professionals).

- Train staff to identify any gaps in knowledge, confidence or skills to deliver particular aspects of the programme and ensure these gaps are addressed through further training.

Recommendation 13: Monitoring and evaluation: programmes

Who should take action?

- Commissioners of lifestyle weight management programmes.

- Providers of lifestyle weight management programmes.

What action should they take?

- Routinely collect the following information for all participants at the end of the lifestyle weight management programme (including those who have not completed it):
  - weight loss (kilograms and per cent)
  - per cent of participants losing more than, for example, 3% of their baseline weight
  - per cent adherence to the programme
  - participant age, gender, ethnicity and socioeconomic status (for example, as indicated by the postcode of participants), so that the impact on health inequalities can be assessed.

- Where possible, collect other outcomes (using validated measuring tools), for example:

  - changes in eating behaviours, physical activity and sedentary behaviours
  - changes in self-esteem, depression or anxiety.

- Do not rely on self-reported measures of height or weight. Use data collection tools that are validated for the population group the programme addresses, where possible. (For example, use the Standard Evaluation Framework for weight management interventions.).

- Aim to collect weight and other outcomes at 12 months to monitor longer term outcomes. Consider at the outset how this can best be achieved with minimal cost. (Establishing good links and sharing information between providers and GPs, in line with information governance requirements, may help with routine collection of this data.)

- Collect data on the views and experience of all participants: areas they found helpful and areas for improvement. This includes the views of those who did not complete the programme.

- Collect data on the views of staff delivering the programme and of those referring participants to it. Use the information to identify any practical or process issues that may need addressing.

Recommendation 14: Monitoring and evaluation: local provision

Who should take action?

- Commissioners and providers of lifestyle weight management programmes.

What action should they take?

- Regularly review lifestyle weight management services for adults to ensure:
  - they meet local needs (as identified by the joint strategic needs assessment)
  - they report adherence and outcomes to agreed standards.

- Monitor awareness among health professionals and potential users.

- Collect data on referral routes to identify geographical areas where awareness of available programmes is low and where referral rates might be increased.

- Commissioners should evaluate lifestyle weight management programmes using outcome data and the cost of promotion and delivery. They should also use it to amend, improve or de-commission the service.

See also recommendation 10 in 'Obesity: working with local communities' (NICE public health guidance 42).

2 Public health need and practice

In 2011, just over one-quarter of adults in England (24% of men and 26% of women aged 16 or older) were classified as obese (body mass index [BMI] 30 kg/m^2 or more). A further 41% of men and 33% of women were overweight (BMI 25 to 30 kg/m^2) (The NHS Information Centre 2013).

Although there are people in all population groups who are overweight or obese, obesity is related to social disadvantage (The Marmot Review 2010).

For women, obesity prevalence increases with greater levels of deprivation, regardless of the measure used. For men, only occupation-based and qualification-based measures show differences in obesity rates by levels of deprivation. For both men and women, obesity prevalence decreases with increasing levels of educational attainment. Around 30% of men and 33% of women with no qualifications are obese compared to 21% of men and 17% of women with a degree or equivalent (The NHS Information Centre 2010).

Obesity is also linked to ethnicity: it is most prevalent among black African women (38%) and least prevalent among Chinese and Bangladeshi men (6%) (The NHS Information Centre 2006).

Being overweight or obese can lead to both chronic and severe medical conditions (Foresight 2007). It is estimated that life expectancy is reduced by an average of 2 to 4 years for those with a BMI of 30 to 35 kg/m^2, and 8 to

10 years for those with a BMI of 40 to 50 kg/m^2 (National Obesity Observatory 2010).

Women who are obese are estimated to be around 13 times more likely to develop type 2 diabetes and 4 times more likely to develop hypertension than women who are not obese. Men who are obese are estimated to be around 5 times more likely to develop type 2 diabetes and 2.5 times more likely to develop hypertension than men who are not obese (NHS Information Centre 2011, National Audit Office 2001). People who are obese may also experience mental health problems as a result of stigma and bullying or discrimination in the workplace (Puhl and Heuer 2009).

The cost to society and the economy of people being overweight or obese was estimated at almost £16 billion in 2007 (more than 1% of gross domestic product). It could rise to just under £50 billion in 2050 (based on 2007 prices), if obesity rates continue to rise unchecked (DH 2011).

The government's obesity strategy 'Healthy lives: a call to action on obesity in England' (DH 2011) aimed to reduce, 'the level of excess weight averaged across all adults by 2020'. It advocated a range of local interventions that both prevent obesity and treat those who are already obese or overweight (DH 2011).

Commercial, voluntary sector and self-help weight management programmes may be part of the solution.

In many areas, the local authority or NHS commission commercial companies or voluntary organisations to provide individual or group lifestyle weight management services.

Local policies vary, but generally, these lifestyle weight management programmes are grouped within tier 2 services – and they usually run for around 12 weeks.

There has been uncertainty about which weight management programmes are effective and constitute good value for money. NICE guidance on obesity

advised that primary care organisations and local authorities should recommend or endorse self-help, commercial and community weight management programmes only if they followed stated best practice. Evidence published since 2006 (such as Loveman 2011) provides an opportunity to refine and clarify best practice (for both self-help and referral schemes) and provide guidance on the commissioning of such programmes.

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.)

Protecting people's mental and physical wellbeing

3.1 The PDG considered that the overarching approach to lifestyle weight management should be to do no harm.

3.2 Generally, the more weight an adult loses as part of a lifestyle weight management programme, the more health benefits they are likely to gain. (For example, they could benefit from reducing their blood pressure or improving control of blood glucose levels.) A commonly stated 'realistic' goal is to lose around 5–10% of baseline weight. The evidence reviews for this guidance estimated that the mean percentage weight loss from participating in a lifestyle weight management programme was somewhat lower, at around 3% of baseline weight. However, the PDG noted that even losing this relatively small amount of weight is likely to lead to health benefits (particularly if the weight loss is maintained).

3.3 Observed losses from multicomponent lifestyle weight management programmes (as identified in the evidence review) are unlikely to be associated with adverse physical effects. But the PDG noted that any adverse effects were not actively investigated or systematically reported in the majority of trials reviewed.

3.4 The PDG heard that people who are obese may perceive or experience stigma on a daily basis, and that any failure to lose weight (or regaining weight following weight loss) may have a negative psychological effect. Although this should not be a reason to avoid managing weight, it does highlight the importance of adopting a respectful, non-blaming approach. It also highlights the importance of providing long-term support. The PDG noted that it is vital patients are enabled to make informed choices about if, when and how they manage their weight. Training is particularly important in both these contexts. The Group also noted that the type and level of training for weight management programmes varies substantially. In particular, healthcare professionals reported concerns about their lack of training or confidence in raising the issue of weight management.

Evidence

3.5 The PDG considered a substantial body of evidence, including 29 randomised controlled trials lasting at least 12 months. However, only 7 of the 29 trials reported outcomes at 3 years or longer and no studies were identified with outcomes beyond 5 years. This was disappointing, given that maintaining weight loss is known to be difficult (and, as a result, short-term outcomes may be misleading). It is also problematic for commissioners: modelling work showed that even a small amount of weight loss is cost effective. But this is only the case if the weight loss is permanently maintained on a lower 'weight-gain trajectory' (see weight loss maintenance for an explanation).

3.6 The PDG concluded that multicomponent lifestyle weight management programmes that address eating behaviours, physical activity and behaviour change are effective in helping adults lose weight, at least in the short term. However, it was difficult to draw conclusions about why some programmes were more effective than others or about the impact of specific components (such as setting,

length or intensity). Few studies reported outcomes for specific subgroups and it was unclear what any reported 'tailoring' for such subgroups meant in practice.

3.7 The PDG noted that obese adults may attempt to lose weight many times throughout their lives. The point at which they may be successful (and the number of times this translates into a referral to services) was unclear. In addition, the short- and long- term impact (both positive and negative) on their psychological or physical health remains unclear. The PDG agreed that people who are obese need as many opportunities as possible to lose weight. But it noted that research is needed to confirm that repeated dieting poses no long-term health risks and does not result in a higher weight than baseline.

3.8 The PDG was unable to consider the relative effectiveness of alternative approaches to weight management – such as focusing on healthy living and the prevention of weight gain rather than weight loss – because of a lack of trials that met the review inclusion criteria.

3.9 The PDG noted the lack of longer term follow-up of a range of approaches to weight management and the lack of standard evaluation of trials. This includes standard reporting of weight outcomes for a range of population groups to judge the impact on inequalities in health. It has made a research recommendation on this to improve the evidence base.

Wider context

3.10 The guidance focused on multicomponent lifestyle weight management services and excluded other routes for managing obesity, such as drugs or surgery. Evidence that focused only on populations with linked conditions (such as type 2 diabetes) was excluded, as was evidence on people with more complex needs (such as those who are obese and also have alcohol or mental

health problems). The relative effectiveness of, for example, specific dietary approaches or the impact of wider behaviours that have been linked to weight gain (such as shift working or sleep) was not considered. Therefore it is important to read this guidance in the context of broader NICE guidance on obesity.

3.11 The PDG noted that the effectiveness of lifestyle weight management programmes might be influenced by the local strategic approach being taken on obesity. For example, whether people have easy access to affordable fruit and vegetables, or to open or green spaces.

Commissioning

3.12 The PDG was concerned that people who have attended weight management services often appear to be left to their own devices when it comes to maintaining any weight loss. In addition, there do not always appear to be any systems in place for sharing information between GP surgeries and weight management services. In light of this the PDG has stressed the importance of support to maintain any weight loss in the longer term.

3.13 Evidence suggests that the commercial multicomponent lifestyle weight management programmes currently available in the UK are likely to be effective, at least in the short term. The effectiveness of GP or practice nurse-led services is less clear. Nevertheless, the PDG noted that local NHS programmes or services may be established to address the needs of people living in particular geographic areas, or from lower income groups, if those needs are not being met by commercial programmes.

3.14 The PDG was concerned that people from lower income groups may struggle to attend programmes once their referral period is over. This is a particular concern if there is a financial cost for participants wishing to continue the programme beyond the referral period.

3.15 The PDG noted the importance of an integrated approach to weight management to ensure referrals can easily be made within and across different tiers of obesity services. In addition, because some people who are obese may have other health issues, it noted the importance of local links between a variety of services. (This includes, for example, weight management, smoking cessation, mental health services, substance misuse and alcohol counselling services.)

3.16 The training recommendations in this guidance apply to all lifestyle weight management programmes, including commercial, NHS or community programmes.

Cost effectiveness

3.17 The economic model estimated that a 12-week programme costing £100 or less will be cost-effective for people who are overweight or obese if the amount of weight they lose, compared with what it would have been without the intervention, is maintained for life. This is true even if no more than 1 kg of weight is lost and this 1 kg difference is maintained for life. Similarly, a 24-week programme costing £200 or less was estimated to be cost effective if the loss is maintained for life. The exception is for adults with an initial body mass index (BMI) of more than 40 kg/m^2: for this group there were not enough data to populate the model. For programmes costing £500 per head, it is estimated that an average 2 kg weight differential must be maintained for life. A 3 kg loss must be maintained for programmes costing £1000 or more per head. The model estimated that programmes costing £100 per head or more, are not cost effective if, on average, participants regained the weight lost within 2 years or less. This is regardless of the average initial weight loss. The key variable is thus the speed with which weight is regained. However, no direct evidence was identified on this issue.

3.18 The model implies that the recommendations will generate better value for money for people older than 50 – even if they regain weight quite quickly (for example, within 3 to 10 years). It also implies that for people aged 20–39, weight loss must be maintained perhaps as long as 40 years before the intervention is worth undertaking.

3.19 The modelling suggests that programmes are better value for money for people whose initial BMI lies between 30 and 40 kg/m^2 (compared to those with a BMI of 25 to 29.9kg/m^2 or above 40kg/m^2)

3.20 The modelling data relate to population cohorts of a given age, sex and overweight or obese category – not to every individual in each cohort. That is because weight loss and gain varies greatly between people in each cohort. If interventions are both effective and cost effective for a particular cohort, they are usually cost effective for people in the cohort who have lost at least the average amount of weight, or who have regained weight at an average rate or slower than average rate.

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 or negative side effects.

Recommendation 1 Longer term evaluation

Who should take action?

Research councils, commissioners and funders.

What action should they take?

- Develop and implement long-term (at least 3 to 5 years and ideally, beyond 10 years) trials comparing UK lifestyle weight management programmes for adults who are overweight or obese. Studies should address the following:
    - Do short-term (12-week) interventions provide adults with the self-management skills they need to maintain weight loss in the long term?
    - Are alternative approaches to weight management (such as approaches that focus on healthy living and the prevention of weight gain rather than weight loss) effective in the long term?
    - How effective are programmes for people of different ages and gender or from different ethnic or socioeconomic groups?
    - How effective are programmes for specific population groups, such as adults with depression or with disabilities?
    - What are the reasons for poor adherence or dropping out altogether?

- Studies should also collect delivery cost data to allow cost effectiveness to be evaluated.

Recommendation 2 Outcomes

Who should take action?

Research councils, commissioners and funders.

What action should they take?

- Ensure trials of lifestyle weight management programmes for adults who are overweight or obese collect and report on the following outcome measures (in addition to anthropometric measures):
    - behaviour change, such as changes to eating patterns and choices, physical activity level and sedentary behaviour
    - wider lifestyle factors, such as sleeping patterns or stress management
    - psychological issues, such as body confidence or attitude, depression, anxiety or self-esteem
    - health conditions, such as changes to blood pressure or lipids
    - user adherence and satisfaction
    - quality of life.

- All studies should report on any unintended or adverse outcomes. This may include, for example: symptoms of an eating disorder; increased anxiety or depression; loss of bone mass. They should also report on 'non-completers' wherever possible, because any adverse effects may be different for those who do and do not complete a programme.

- Studies should examine whether different approaches to commissioning influence programme outcomes.

Recommendation 3 Programme components

Who should take action?

Research councils, commissioners and funders.

What action should they take?

- Develop and implement trials to consider the impact of specific components of a lifestyle weight management programme on adherence, effectiveness and cost effectiveness. This includes:
    - components, or combinations of components, that support weight loss or maintenance of weight loss (including those focused on diet, physical activity and behaviour change)
    - the effect of programme length, intensity, setting and means of delivery (examples of the latter include group, individual and remote support) on weight loss or maintenance of weight loss
    - the impact of new technologies on both weight loss and maintenance of weight loss
    - the impact of interventions on wider factors such as sleep patterns, self-confidence or stress.

Recommendation 4 Ongoing referral and re-referral

Who should take action?

Research councils, commissioners and funders.

What action should they take?

- Carry out good quality research on re-referral to lifestyle weight management programmes and ongoing referral to more specialist services. In particular, address the following:
    - How long should people wait before being re-referred to a programme?
    - Does re-referral to the same (or similar programme) influence adherence, effectiveness or cost effectiveness?
    - In what circumstances should participants not be re-referred to the same (or similar programme)?
    - Who is best placed to provide ongoing support after the programme, and does this differ according to whether

someone completed the programme or met their weight loss goal?

- Are there any unintended or adverse effects from repeated attempts to lose weight?

Recommendation 5 Training

Who should take action?

Research councils, commissioners, training organisations and funders.

What action should they take?

- Research the effect of providing lifestyle weight management training for health professionals and lifestyle weight management staff on:
  - the referral process, including patient satisfaction
  - programme outcomes (weight loss and maintenance of loss), adherence to the programme and participants' satisfaction with it
  - staff confidence in discussing weight issues and any concerns about their own weight
  - general approach of staff (that is, whether they adopt a 'non-blaming' approach as a result).

More detail identified during development of this guidance is provided in Gaps in the evidence.

5 Related NICE guidance

Published

- BMI and waist circumference – black, Asian and minority ethnic groups. NICE public health guidance 46 (2013).
- Physical activity brief advice for adults in primary care. NICE public health guidance44 (2013).
- Fertility. NICE clinical guideline 156 (2013).

- Obesity: working with local communities. NICE public health guidance 42 (2012).
- Walking and cycling. NICE public health guidance 41 (2012).
- Preventing type 2 diabetes: risk identification and interventions for individuals at high risk. NICE public health guidance 38 (2012).
- Preventing type 2 diabetes: population and community interventions. NICE public health guidance 35 (2011).
- Hypertension. NICE clinical guideline 127 (2011).
- Weight management before, during and after pregnancy. NICE public health guidance 27 (2010).
- Prevention of cardiovascular disease. NICE public health guidance 25 (2010).
- Physical activity and the environment. NICE public health guidance 8 (2008).
- Familial hypercholesterolaemia. NICE clinical guideline 71 (2008).
- Behaviour change. NICE public health guidance 6 (2007).
- Obesity. NICE clinical guideline 43 (2006).
- Eating disorders. NICE clinical guideline 9 (2004).

Under development

- Overweight and obese children and young people: lifestyle weight management services. NICE public health guidance. Publication expected October 2013
- Behaviour change. NICE public health guidance. Publication expected December 2013.
- Exercise referral schemes. NICE public health guidance. Publication expected September 2014.
- Maintaining a healthy weight and preventing excess weight gain among children and adults. NICE public health guidance. Publication expected March 2015.

6 Glossary

Behaviour change

A collection of techniques that aim to help people change their behaviour to improve their health. The techniques are based on an established theory or rationale. Examples include: the theory of planned behaviour, the self-regulation model, learning theory and social learning theory.

Body mass index

Body mass index (BMI) is commonly used to measure whether or not adults are a healthy weight or underweight, overweight or obese. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2).

Commissioners of lifestyle weight management programmes

Public health teams within local authorities that commission lifestyle weight management programmes.

Complex needs

'Complex needs' refers to issues that affect a person's health and wellbeing. They might include:

- a behavioural issue such as substance misuse
- specific conditions such as those limiting mobility or learning, mental health conditions, substantive or life-threatening comorbidities
- personal social circumstances, such as homelessness.

Eating behaviours

This includes a range of factors including the food and drinks (including alcoholic drinks) consumed, the energy and nutrient intake, and the pattern and timing of eating.

Lifestyle weight management programmes

Lifestyle weight management programmes for overweight or obese adults are multi-component programmes that aim to reduce their energy intake and help

them to be more physically active by changing their behaviour. They may include weight management programmes, courses or clubs that:

- accept adults through self-referral or referral from a health practitioner
- are provided by the public, private or voluntary sector
- are based in the community, workplaces, primary care or online.

Physical activity

The full range of human movement, from competitive sport and exercise to active hobbies, walking, cycling and the other physical activities involved in daily living.

Physical activity instructor

A qualified physical activity instructor has qualifications that meet the fitness industry's agreed standards and undertakes continued professional development. The Register of Exercise Professionals level 3 qualification is appropriate for instructors providing exercise as part of 'exercise on referral' (that is, referral for physical activity from a GP or another health professional). Level 4 covers exercise for people who are obese and have other health conditions such as heart disease, diabetes and back pain.

Providers of lifestyle weight management programmes

Providers of lifestyle weight management programmes are private, public or voluntary sector organisations offering lifestyle weight management services in the community or in (or via) primary care settings. 'Providers' include organisations that design, develop or deliver programmes.

Stigma

Stigma in relation to someone's weight may take the form of bullying, teasing, harsh comments, discrimination or prejudice based on a person's body size.

Tiers 1, 2, 3, 4

Different tiers of weight management services cover different activities. Definitions vary locally but usually tier 1 covers universal services (such as health promotion or primary care); tier 2 covers lifestyle interventions; tier 3

covers specialist weight management services; and tier 4 covers bariatric surgery.

Weight loss

In this guidance, weight loss refers to the amount of weight intentionally lost through a lifestyle weight management programme.

Weight loss maintenance

In this guidance, weight loss maintenance means not regaining any of the weight that was lost during a lifestyle weight management programme. Generally during adulthood, people put on weight. For example, men and women aged 39 to 79 at baseline in a large UK cohort were found to gain 0.21 (±1.83) kg per year in weight (Golubic et al. 2013). Weight loss maintenance therefore refers to keeping to a lower weight than would otherwise have been possible had someone not lost any weight in the first place. This is also referred to as being on a lower weight trajectory.

Weight maintenance

The maintenance of a specific weight (whether or not weight has been lost).

7 References

Department of Health (2011) Healthy lives, healthy people: a call to action on obesity in England. London: HM Government

Foresight (2007) Tackling obesities: future choices – project report. London: Government Office for Science

Golubic R, Ekelund U, Wijndaele K et al. (2013). Rate of weight gain predicts change in physical activity levels: a longitudinal analysis of the EPIC-Norfolk cohort. International Journal of Obesity 37: 404–9

Loveman E, Frampton GK, Shepherd J et al. (2011) The clinical effectiveness and cost-effectiveness of long-term weight management schemes for adults: a systematic review. Health Technology Assessment 15 (2)

NHS Information Centre (2011) Statistics on obesity, physical activity and diet: England, 2011. Leeds: NHS Information Centre

National Audit Office (2001) Tackling obesity in England. London: National Audit Office

National Obesity Observatory (2010) Briefing note: obesity and life expectancy. Oxford: National Obesity Observatory

Puhl RM, Heuer CA (2009). The stigma of obesity: a review and update. Obesity 17: 941–64

The Marmot Review (2010) Fair society, healthy lives: strategic review of health inequalities in England post-2010. London: The Marmot Review

The NHS Information Centre (2013) Statistics on obesity, physical activity and diet: England. Leeds: The NHS Information Centre

The NHS Information Centre (2010) Statistics on obesity, physical activity and diet: England. Leeds: The NHS Information Centre

The NHS Information Centre (2006) Statistics on obesity, physical activity and diet: England. Leeds: The NHS Information Centre

8 Summary of the methods used to develop this guidance

Introduction

The reviews, commissioned report and economic modelling report 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 modelling undertaken and submitted to PDG

6. PDG produces draft recommendations

7. Draft guidance (and evidence) released for consultation and for field testing

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 question was: how effective and cost effective are multi-component lifestyle weight management programmes for adults?

The subsidiary questions were:

1. How does effectiveness and cost effectiveness vary for different population groups (for example, men, black and minority ethnic or low-income groups)?

2. What are the best practice principles for multi-component lifestyle weight management programmes for adults?

3. What are the most effective and cost effective behavioural or psychological components of a lifestyle weight management programme for adults – and who might best deliver them?

4. What are the views, perceptions and beliefs of adults in relation to lifestyle weight management programmes (whether or not they use such programmes)? How can overweight and obese adults from a diverse range of backgrounds be encouraged to join, and adhere to, these programmes?

5. How can lifestyle changes and weight loss be sustained once the weight management programme has ended?

6. What barriers and facilitators affect the delivery of effective weight-management programmes for adults and how do they vary for different population groups?

7. What are the best practice principles for primary care when referring people to commercial, voluntary or community sector or self-help lifestyle weight management programmes?

8. What are the best practice principles for commissioners of lifestyle weight management services for adults?

9. What training is needed for professionals involved directly or indirectly with lifestyle weight management programmes for adults?

10. How should lifestyle weight management programmes be monitored and evaluated locally?

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

Reviewing the evidence

Effectiveness reviews

One review of effectiveness was conducted, split into 3 sections (review 1).

For more details see What evidence is this guidance based on?

Identifying the evidence

The review updated and expanded on an existing review (Loveman 2011) and uses similar methods.

Ten electronic databases were systematically searched in October 2012 for randomised controlled trials of multi-component behavioural weight management programmes. See the review for details of the databases searched.

Reference lists were also screened and references submitted to NICE in a call for evidence.

Selection criteria

Studies were included in the effectiveness review if they:

- were multi-component interventions addressing physical activity, dietary intake and behaviour change
- were randomised controlled trials.
- included at least 12 months follow-up
- included a measure for weight loss (for example, weight or body mass index [BMI])
- included adults aged 18 and older who were overweight or obese
- were undertaken in OECD (Organisation for Economic Co-operation and Development) countries
- were published in English.

Studies were excluded if they:

- included children and pregnant women

- included people with eating disorders
- included people with a pre-existing medical condition such as diabetes, heart failure, uncontrolled hypertension or angina
- focused on pharmacological or surgical interventions.

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

Other reviews

One review of barriers and facilitators, referral, commissioning and training issues in relation to lifestyle weight management was conducted (review 2).

Identifying the evidence

A range of databases and websites was searched in April 2013 for qualitative evidence, grey literature and best practice guidance. See review 2 for details.

Selection criteria

Studies were included in the review if they:

- addressed questions included in the scope (except questions of effectiveness).
- focused on adults aged 18 and older who were overweight or obese
- were published in the UK.

Studies were excluded if they:

- included children and pregnant women
- included people with eating disorders
- focused on pharmacological or surgical interventions
- included people with a pre-existing medical condition such as diabetes, heart failure, uncontrolled hypertension or angina
- focused on pharmacological or surgical interventions.

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. Included studies were not evaluated on the basis of blinding.

Study quality: internal validity

++ 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.

This was based on:

- randomisation and allocation procedures
- evidence of selective reporting
- attrition (at 12 months or at the closest point reported after 12 months, as appropriate).

Study quality: external validity

As above, external validity was rated '++', '+' or '−' based on whether:

- participants were representative of the general population
- the intervention needed any extraordinary efforts to implement in the UK (for example, the implementation of a particular infrastructure).

Summarising the evidence and making evidence statements

The review data were summarised in evidence tables (see full reviews).

The findings from the reviews were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements were prepared by the external contractors (see About this guidance). The statements reflect their judgment of the strength (quality, quantity and consistency) of evidence and its applicability to the populations and settings in the scope.

Commissioned report

A questionnaire covering practical and process issues was sent to known weight management providers operating in England. Responses to the survey were compiled by an independent researcher.

Cost effectiveness

There was a review of economic evaluations and an economic modelling exercise.

Review of economic evaluations

The review of economic evaluations was an extension of the effectiveness review (review 1). Studies were considered if they had been undertaken in an OECD country and included a cost effectiveness analysis. For a description of the search strategy and the inclusion, exclusion and quality criteria used, see the Effectiveness reviews.

Economic modelling

An economic model was constructed to incorporate data from review 1. The results are reported in: Managing overweight and obesity among adults: report on economic modelling and cost consequence analysis on the NICE website.

How the PDG formulated the recommendations

At its meetings in 2013, the Programme Development Group (PDG) considered the evidence, expert testimony, commissioned report and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of strength and applicability) to form a judgment
- 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 judgments.
- 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 effectiveness can vary according to whether interventions are delivered to a group or on a one-to-one basis.

Where possible, recommendations were linked to an evidence statement(s) (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 2 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 4 expert papers and a commissioned report 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 letter(s) 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 1.2 indicates that the linked statement is numbered 1.2 in review 1. Evidence statement number 2.2 indicates that the statement is numbered 2.2 in review 2. EP1 indicates that expert paper 1 is linked to a recommendation. CR1 indicates that the commissioned report is linked to a recommendation. EM indicates that the economic modelling report is linked to a recommendation.

The reviews, commissioned report, 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: EP2, EP4; IDE

Recommendation 2: evidence statement 1.9; EP1, EP2, EP3, IDE

Recommendation 3: evidence statements 2.8, 2.9, 2.10; EP2, EP4; CR, IDE

Recommendation 4: evidence statements 1.1, 1.23, 2.1, 2.7; EP2; EM

Recommendation 5: evidence statements 2.1, 2.2, 2.7; EP1, EP2, EP3,EP4

Recommendation 6: evidence statements 1.2, 1.8, 1.9, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.18, 1.22, 2.5, 2.6, 2.14; EP1, EP2, EP3; CR, EM

Recommendation 7: evidence statements 1.19, 1.20, 1.21, 1.22, 1.23, 2.5; EP2, EP3; EM

Recommendation 8: evidence statements 1.3, 1.4, 1.5, 1.6, 1.7, 1.10, 1.20, 1.23, 2.12, 2.13; EP2, EP4, CR

Recommendation 9: evidence statements 1.5, 1.6, 1.7, 1.10, 2.1, 2.2, 2.3, 2.4, 2.5, 2.8, 2.11, EP2; CR, EM

Recommendation 10: evidence statements 2.1, 2.2, 2.4, 2.5, 2.7, 2.8, 2.11; EP2, CR.

Recommendation 11: evidence statements 2.9, 2.10, 2.11, 2.14; EP1, EP2, EP3

Recommendation 12: evidence statements 2.9, 2.10, 2.11, 2.14; EP1, EP2, EP3

Recommendation 13: evidence statements 2.8, 2.9, 2.11, 2.12, 2.13

Recommendation 14: evidence statements 2.9, 2.10, 2.14; EP4

Evidence statements

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

Evidence statement 1.0 Applicability of available data

There is a large body of evidence on behavioural weight management programs (BWMPs) that was judged to be of high quality and applicable to the UK. The evidence reviewed supported and extended the conclusions drawn by Loveman et al. 2011, that is that BWMPs can be effective and cost effective. Of the 43 RCTs identified and drawn upon in the below evidence statements, all were judged to be applicable to the UK population. Twenty-two studies were judged to be of high external validity. The remaining 21 RCTs identified were judged to be of moderate external validity due to some concern that the intervention may not be widely applicable or that the population or the study was highly selective and may not be representative. Of the RCTs identified, 26 were conducted in the USA, 3 in the UK, 2 each in the Netherlands and Sweden, and 1 each in Australia, Belgium, Brazil, Canada, Finland, Japan, New Zealand, and Portugal. The final study was multi-centre and was conducted in the UK, Germany, and Australia.

Evidence statement 1.1 Mid-term weight loss in BWMPs

Strong evidence from a meta-analysis trial indicates that BWMPs can lead to greater weight loss over a 12 to 18-month period than control arms (pooled mean difference −2.59 kg, 95% CI −2.78 to −2.41). The substantial between study heterogeneity indicates that the effectiveness of these programmes varies. The meta-analysis was based on 29 randomised controlled trials (RCTs), with 7540 BWMP participants and 5913 controls in the following countries: 14 USA (12 [++][1], 2 [+][2]), 3 UK (1 [++] [3], 2 [+][4]), 2 Netherlands (both [+][5]), 2 Sweden (both [++][6]), 1 Canada (++)[7], 1 Australia (++), 1 New Zealand (+)[9], 1 Finland (++)[10], 1 Switzerland (−)[11], 1 Portugal (++)[12], 1 Belgium (+)[13] and 1 multi-country (UK, Germany, Australia) (+)[14].

[1] Appel 2011, Diabetes Prevention Programme 2002, Fitzgibbon 2010, Foster-Schubert 2012, Heshka 2003, Kuller 2012, Patrick 2011, Rock 2010, Stevens 1993, Stevens 2001, Villareal 2011, Wadden 2011

[2] Hersey 2012, Rejeski 2011

[3] Nanchalal 2012

[4] Jolly 2011, Penn 2009

[5] Mensink 2003, Vermunt 2011

[6] Bertz 2012, Eriksson 2009

[7] Ross 2012

[8] Morgan 2011

[9] Dale 2008

[10] Lindstrom 2003

[11] Munsch 2003

[12] Silva 2010

[13] Vissers 2010

[14] Jebb 2011

Evidence statement 1.2 Long term weight-loss in BWMPs.

Strong evidence from a meta-analysis of trials indicates that BWMPs can lead to greater weight-loss over 18 to 24 months (pooled mean difference −1.54 kg, 95% CI −1.79 to −1.30) and at 36 to 48 months (pooled mean difference −2.21 kg, 95% CI −2.66 to −1.75) than control arms. The substantial between-study heterogeneity indicates that the effectiveness of these programmes varies. The meta-analysis for 18 to 24-month differences was based on 15 RCTs in the following countries: 10 USA (8 [++]1, 2[+][2]), 2 Netherlands (both [+])[3], 1 New Zealand (+)[4], 1 UK (+)[5], 1 Canada (++)[6]. The meta-analysis for 36 months differences was based on 4 studies in the following countries 2 USA (both [++])[7], 1 Finland (++)[8], 1 UK (+)[9].

[1] Appel 2011, Fitzgibbon 2010, Heshka 2003, Kuller 2012, Rock 2010, Stevens 1993, Stevens 2001, Wadden 2011

[2] Hersey 2012, Rejeski 2011

[3] Mensink 2003, Vermunt 2011

[4] Dale 2008

[5] Penn 2009

[6] Ross 2012

[7] Kuller 2012, Stevens 2001

[8] Lindstrom 2003

[9] Penn 2009

Evidence statement 1.3 Weight loss in programmes currently available in the UK

There is strong trial evidence that BWMPs currently available in the UK can lead to greater weight-loss over a 12–18-month period than usual care control arms. There is moderate observational evidence to suggest commercial

BWMP's are associated with greater weight-loss than BWMPs delivered in primary care but this should be interpreted with caution due to the limited number of studies and programmes included. The analysis of UK available programmes included 4 studies with commercial BWMPs in the following countries, 2 USA (both [++])[1], 1 UK (+)[2], 1 multi-country (+)[3]; and 6 studies with BWMPs delivered in primary care in the following countries, 2 UK (1 [++][4], 1 [+][5]), 1 Switzerland (−)[6], 1 Canada (++)[7], 1 Netherlands (+)[8], 1 USA (++)[9].

[1] Heshka 2003, Rock 2010

[2] Jolly 2011

[3] Jebb 2011

[4] Nanchahal 2011

[5] Jolly 2011

[6] Munsch 2003

[7] Ross 2012

[8] Vermunt 2011

[9] Wadden 2011

Evidence statement 1.4 Effectiveness for different population groups: gender

There was inconsistent observational evidence that men have slightly more weight loss than women on BWMPs. Three of five studies that reported on weight loss split by gender found that weight loss was significantly greater in men than in women at 12 months or longer. Four studies were based in the USA (3 [++][1], 1 [+][2]) and 1 in the UK (+)[3]. There is no evidence that one type of BWMP suits one gender more than another.

[1] Heshka 2003, Stevens 1993, Stevens 2001

[2] Jeffery 1995

[3] Jolly 2011

Evidence statement 1.5 Effectiveness for different population groups: age

There was moderate observational evidence that BWMPs are effective in all age groups but that older participants (> 60) lose more weight than younger participants from 2 studies that reported results by age group. Both were conducted in the USA (both [++])[1]. There is no evidence that one type of BWMP suits one age group more than another.

[1] Diabetes Prevention Programme 2002, Stevens 2001

Evidence statement 1.6 Effectiveness for different population groups: ethnicity

There is inconsistent observational evidence that European–Americans lose more weight than African–Americans on the same BWMP. Of the 2 studies that reported results by ethnicity, 1 found no difference between African–Americans and European–Americans and 1 found that European Americans lost more weight than African–Americans at 18 months but not at 36 months. Both studies were conducted in the USA (both [++])[1], and both tested the same intervention. There is no evidence that one type of BWMP suits one ethnic group more than another.

[1] Stevens 1993, Stevens 2001

Evidence statement 1.7 Effectiveness for different population groups: other categories

There is no evidence as to whether the effectiveness of BWMPs varies based on the sexual orientation, disability, religion, place of residence, occupation, education, socioeconomic position or social capital of participants. No studies reported results using these demographics.

Evidence statement 1.8 Diet and physical activity outcomes

There is moderate trial evidence that BWMPs influence diet and physical activity outcomes at 12 to 18 months. Relatively few studies reported on dietary or physical activity outcomes, and in those that did, reporting was variable. Selective reporting is a risk, hence results should be interpreted with caution. In the 11 studies that reported dietary data, 8 studies found energy intake to be significantly lower in BWMPs (in 4 cases, differences were statistically significant) and 8 studies reported greater improvements in BWMP groups for other dietary behaviours. In the 16 studies that reported physical activity, 14 reported improvements in physical activity with 11 observing significantly greater improvement in physical activity in BWMPs. Evidence on dietary outcomes is based on 11 studies in the following countries, 5 USA (4 [++][1], 1 [+][2]) 2 Netherlands (both [+])[3], 1 Sweden (++) [4], 1 New Zealand (+)[5], 1 multi country (+)[6], and 1 Finland (++)[7]. Evidence on physical activity outcomes is based on 16 studies in the following countries, 8 USA (6 [++][8], 1 [+][9]), 2 UK (both [+][10]), 2 Sweden (both [++][11]), 1 Netherlands (+)[12], 1 New Zealand (+)[13], 1 Finland (++)[14], 1 Canada (++)[15], 1 Portugal (++)[16].

[1] Diabetes Prevention Programme 2002, Fitzgibbon 2010, Foster-Schubert 2012, Kuller 2012

[2] Jeffery 1995

[3] Mensink 2003, Vermunt 2011

[4] Bertz 2012

[5] Dale 2008

[6] Jebb 2011

[7] Lindstrom 2003

[8] Diabetes Prevention Programme 2002, Fitzgibbon 2010, Foster-Schubert 2012, Kuller 2012, Patrick 2011, Stevens 1993

[9] Rejeski 2011

[10] Jolly 2011, Penn 2009

[11] Bertz 2012, Eriksson 2009

[12] Vermunt 2011

[14] Lindstrom 2003

[15] Ross 2012

[16] Jebb 2011

Evidence statement 1.9 Adverse events

There was moderate trial evidence that BWMPs cause few adverse events and no serious adverse events. A minority of studies reported on adverse events. In those that did, the adverse events likely to be a result of participation occurred during exercise and were primarily musculoskeletal events that were not serious. Reporting varied within trials and the majority of studies did not report on adverse events. This evidence is based on 9 studies in the following countries: 3 USA (2 [++][1], 1 [+][2]), 2 Sweden (both [++])[3], 1 Canada (++)[4], 1 Netherlands (+)[5], and 1 based in the UK, Germany and Australia (+)[6].

[1] Appel 2011, Diabetes Prevention Programme 2002

[2] Rejeski 2011

[3] Bertz 2012, Eriksson 2009

[4] Ross 2012

[5] Mensink 2003

[6] Jebb 2011

Evidence statement 1.10 Cost effectiveness

There was weak evidence that BWMPs are cost effective. Only 3 of the 30 included studies reported cost-effectiveness analyses. These concluded that interventions were cost effective, but there is variability between costs of

individual interventions and between the methods of analysis used. Of the 3 studies, 1 was based in the UK, Germany and Australia (+)[1] and 2 were based in the USA (1 [++][2], 1 [+][3]).

[1] Jebb 2011

[2] Diabetes Prevention Programme 2002

[3] Hersey 2012

Evidence statement 1.11 Weight loss in programmes involving diet and exercise versus diet-only or exercise-only programmes

Strong evidence from a meta-analysis of trials indicates that BWMPs that involve both diet and exercise can lead to greater weight loss over a 12 to 18-month period than those that involve diet only or exercise only. Pooled results showed that mean weight loss at 12 to 18 months was significantly higher in programmes that involved diet and exercise than in those that involved diet alone (mean difference −1.79 kg, 95% CI −2.86 to −0.72, I^2=30%) or in those that involved exercise alone (mean difference −6.33 kg, 95% CI −7.30 to −5.37, I^2=9%). Data in the diet-only comparison comes from 6 randomised controlled trials involving 535 participants: 4 were conducted in the USA (2 [++][1], 2 [+][2]), 1 in Sweden (++)[3], and 1 in Belgium (+)[4]. Data in the exercise-only comparison comes from 5 randomised controlled trials involving 602 participants: 4 studies were conducted in the USA (2 [++][1], 2 [+][5]) and 1 in Sweden (++)[3].

[1] Foster-Schubert 2012, Villareal 2011

[2] Skender 1996, Wadden 1988

[3] Bertz 2012

[4] Vissers 2010

[5] Rejeski 2011, Skender 1996

Evidence statement 1.12 Weight loss by in-person versus remote contact

There was weak trial evidence to suggest that there is no difference in weight loss at 12 to 18 months between programmes delivered by in-person contact versus those delivered by remote contact only. Of 3 studies that provided direct comparisons on this variable, none detected a significant effect. Pooled results also did not detect a significant effect (mean difference −0.17 kg, 95% CI −1.23 to −0.89) but were highly heterogeneous (I^2=65%).The 3 RCTs represented 624 participants and all 3 were conducted in the USA (2 [++][1], 1 [+][2]).

[1] Appel 2011, Rock 2010

[2] Micco 2007

Evidence statement 1.13 Weight loss by professional background of therapist

There was moderate observational evidence to suggest that interventions that involved contact with a dietitian* were associated with greater weight loss than those that did not involve dietitian contact. This variable was not significant in a single variable meta-regression, but was significant when adjusted for presence or absence of a set energy prescription (coefficient −1.5 kg, 95% CI −2.9 to −0.1). Fifteen randomised controlled trials testing interventions that involved dietitian contact were included in this comparison: 6 were conducted in the USA (all [++])[1], 2 in Sweden (both [++])[2], 2 in the Netherlands (+)[3], and 1 each in Belgium (+)[4], Finland (++)[5], New Zealand (+)[6], Portugal (+)[7] and the UK (+)[8]. These were compared with 14 randomised controlled trials that involved interventions with no dietitian contact: 8 were conducted in the USA (6 [++][9], 2 [+][10]), 2 in the UK (1 [+][11], 1 [++][12]), 1 was a multicentre study conducted in the UK, Germany and Australia (+)[13], and 1 each was conducted in Australia (++)[14], Canada (++)[15], and Switzerland (−)[16].

[1] Diabetes Prevention Programme 2002, Foster-Schubert 2012, Patrick 2011, Stevens 1993, Stevens 2001, Villareal 2011

[2] Bertz 2012, Eriksson 2009

[3] Mensink 2003, Vermunt 2011

[4] Vissers 2010

[5] Lindstrom 2003

[6] Dale 2008

[7] Silva 2010

[8] Penn 2009

[9] Appel 2011, Fitzgibbon 2010, Heshka 2003, Kuller 2012, Rock 2010, Wadden 2011

[10] Hersey 2012, Rejeski 2011

[11] Jolly 2011

[12] Nanchahal 2011

[13] Jebb 2011

[14] Morgan 2011

[15] Ross 2012

[16] Munsch 2003

* ‘Dietitian’ is a protected term in the UK and US. The above statement refers to registered dietitians or, in the case of Lindstrom 2003, to the Finnish equivalent. The majority of studies do not offer detail on the frequency, length or nature of the contact with dietitians, but 'contact with dietitians' in this statement refers to a minimum of 1 contact (face to face or telephone) in the majority of cases.

Evidence statement 1.14 Weight loss by supervised versus recommended exercise

There is inconsistent trial evidence as to whether programmes that involve supervised exercise lead to greater weight loss than those that recommend exercise only. Two randomised controlled trials provided direct comparisons between supervised and recommended exercise. One study, conducted in the USA (+)[1], found that at 18 months participants in the group without supervised exercise lost significantly more weight than those in the group with supervised exercise (supervised versus recommended mean difference 2.90 kg, 95% CI 0.09 to 5.71). In contrast, in the second study, conducted in Brazil (++)[2], participants in the arm with supervised exercise lost more weight at 12 months, but the difference was not statistically significant (supervised versus recommended mean difference −0.90 kg, 95% CI −4.06 to +2.26). Subgroup analysis suggested that supervised exercise led to greater weight loss, but results were highly heterogeneous. Meta-regression did not detect a significant association.

[1] Jeffrey 1998

[2] Seligman 2011

Evidence statement 1.15 Weight loss by energy intake prescription

There is strong observational evidence that programmes that specify a daily energy intake are associated with greater weight loss than those that do not prescribe an energy intake. Meta-regression detected a significant association of set energy prescriptions and greater weight loss at 12 to 18 months (coefficient −3.3 kg, 95% CI −4.7 to −1.9, p<0.001). This association persisted and remained largely unchanged when adjusting for the involvement of a dietitian. These findings are consistent with a subgroup analysis on this variable. These analyses included 13 RCTs with no set daily energy intake in the following countries: 3 USA (2 [++][1], 1 [+][2]), 3 UK (1 [++][3], 2 [+][4]), 2 Netherlands (both [+])[5], 1 Sweden (++)[6], 1 New Zealand (+)[7], 1 Finland (++)[8], 1 Switzerland (−)[9] and 1 Canada (++)[10]. It also included 16 studies with set daily energy intake in the following countries: 10 USA (9 [++][11], 1 +[][12]), 1

Sweden (++)[13], 1 multi-country (+)[14], 1 UK (+)[15], 1 Australia (++)[16], 1 Portugal (++)[17] and 1 Belgium (+)[18].

[1] Diabetes Prevention Programme 2002, Patrick 2011

[2] Hersey 2012

[3] Jolly 2011

[4] Nanchahal 2011, Penn 2009

[5] Mensink 2003, Vermunt 2011

[6] Eriksson 2009

[7] Dale 2008

[8] Lindstrom 2003

[9] Munsch 2003

[10] Ross 2012

[11] Appel 2011, Fitzgibbon 2010, Foster-Schubert 2012, Kuller 2012, Rock 2010, Stevens 1993, Stevens 2001, Villareal 2011, Wadden 2011

[12] Rejeski 2011

[13] Bertz 2012

[14] Jebb 2011

[15] Jolly 2011

[16] Morgan 2011

[17] Silva 2011

[18] Vissers 2010

Evidence statement 1.16 Weight loss by programme length

There is weak observational evidence from meta-regression that weight loss at 12 months is not associated with programme length. Univariate results suggested that each additional month of programme up to 12 months was associated with an additional 0.3 kg weight loss (95% CI −0.5 to −0.1, p = 0.009). However, this result was no longer significant when adjusted for set energy prescriptions and dietitian involvement. Results are therefore inconsistent with a subgroup analysis that found greater weight loss in programmes lasting longer than 6 months. The analyses of programme length included 3 RCTs with programmes lasting up to 3 months in the following countries: 1 Sweden (++)[1], 1 UK (+)[2], 1 Australia (++)[3];. There were 2 studies with programmes lasting 4 to 6 months: 1 in New Zealand (+)[4] and 1 in Switzerland (−)[5]. There were 24 studies with programmes lasting longer than 6 months in the following countries: 14 USA (12 [++][6], 2 [+][7]), 2 UK (1 [++][8], 1 [+][9]), 2 Netherlands (both [+])[10], 1 Sweden (++)[11], 1 Canada (++)[12], 1 Finland (++)[13], 1 Portugal (++)[14], 1 Belgium (+)[15] and 1 multi-country (UK, Germany, Australia) (+)[16].

[1] Bertz 2012

[2] Jolly 2011

[3] Morgan 2011

[4] Dale 2008

[5] Munsch 2003

[6] Appel 2011, Diabetes Prevention Programme 2002, Fitzgibbon 2010, Foster-Schubert 2012, Heshka 2003, Kuller 2012, Rock 2010, Stevens 1992, Stevens 2001, Villareal 2011, Wadden 2011

[7] Hersey 2012, Rejeski 2011

[8] Nanchahal 2011

[9] Penn 2009

[10] Mensink 2003, Vermunt 2011

[11] Eriksson 2009

[12] Ross 2012

[13] Lindstrom 2003

[14] Silva 2011

[15] Vissers 2010

[16] Jebb 2011

Evidence statement 1.17 Weight loss by number of sessions

There is moderate observational evidence that weight loss at 12 to 18 months is not associated with the number of intervention sessions offered (up to 12 months). Pooled results from direct comparisons in which participants were randomised to more sessions or fewer sessions favoured providing more sessions but were not statistically significant (mean difference −0.23 kg, 95% CI −0.57 to +0.12, I^2=25%). In a meta-regression, a significant association was found between number of sessions and weight loss at 12 months, with each additional session associated with an additional 0.03 kg weight loss in a single variable model (95% CI −0.04 to −0.01, p=0.004). The association remained significant when adjusting for presence of a set energy prescription, but was no longer significant when also adjusting for involvement of a dietitian. Direct comparisons come from 6 RCTs, 5 of which were conducted in the USA (4 [++][1], 1 [+][2]) and 1 in Japan (+)[3].

[1] Appel 2011, Kumanyika 2012, Logue 2005, Tate 2003

[2] Hersey 2012

[3] Saito 2011

Evidence statement 1.18 Association of behavioural change techniques with weight loss

There was strong evidence from trials that the following behavioural change techniques are used in most BWMPs: goal setting and review of goals (behaviour and outcome); action planning; barrier identification and/or problem solving; graded tasks; self-monitoring of behaviour; feedback on performance; instruction on how to perform behaviour; and planning social support and/or social change. There was no evidence that greater use of any particular groups of these techniques are associated with greater weight loss. Findings are from the 29 RCTs listed in Evidence Statement 1.1.

Evidence statement 1.19 Applicability of available data (weight regain)

There is a large body of evidence on BWMPs that was judged to be of high quality and applicable to the UK. Eleven RCTs provide follow-up data for weight after an active intervention (contact more frequently than once every 2 months). Of the 11 RCTs identified, all were judged to be applicable to the UK population and to be of high external validity; 3 were from the UK (1 [++][1], 2 +[][2]), 2 from the USA (both [++][3]) and 1 each from Australia (++)[4], Belgium (+)[5], Finland (++)[6], New Zealand (+)[7], Sweden (++)[8] and Switzerland (−)[9].

[1] Jolly 2011

[2] Nanchahal 2011, Penn 2009

[3] Diabetes Prevention Programme 2002, Kuller 2012

[4] Morgan 2011

[5] Vissers 2010

[6] Lindstrom 2003

[7] Dale 2008

[8]Bertz 2012

[9] Munsch 2003

Evidence statement 1.20 Rate of weight-loss regain after Multicomponent behavioural weight management programmes

There is strong trial evidence that following a multicomponent behavioural weight management programme and during low contact follow-up (once every 2 months or less), weight regain is 0.047 kg/month (95 CI% 0.029 to 0.066) higher than in a control group. Meta-regression on the rate of weight regain included 11 RCTs in the following countries: 3 UK (1 [++][1], 2 [+][2]), 2 USA (2 [++][3]) and 1 each from Australia (++)[4], Belgium (+)[5], Finland (++)[6], New Zealand (+)[7], Sweden (++)[8] and Switzerland (−)[9].

[1] Jolly 2011

[2] Nanchahal 2011, Penn 2009

[3] Diabetes Prevention Programme 2002, Kuller 2012

[4] Morgan 2011

[5] Vissers 2010

[6] Lindstrom 2003

[7] Dale 2008

[8]Bertz 2012

[9] Munsch 2003

Evidence statement 1.21 Effect of Multicomponent behavioural weight management programme characteristics on the rate of weight regain after programme end

There is moderate observational evidence that the amount of weight-lost at the end of the active intervention (contact more frequently than once every 2 months), supervised exercise during the active intervention phase and behavioural technique score were not associated with rate of weight regain. There is weak observational evidence that type of contact (group, individual or combination of both), number of contacts, frequency of contacts, set energy

prescription and the professional background of the therapist during the active intervention phase were not associated with rate of weight regain. Meta-regression of programme characteristics on the rate of weight regain included 11 RCTs in the following countries: 3 UK (1 [++][1], 2 [+][2]), 2 USA (both [++][3]) and 1 each from Australia (++)[4], Belgium (+)[5], Finland (++)[6], New Zealand (+)[7], Sweden (++)[8] and Switzerland (−)[9].

[1] Jolly 2011

[2] Nanchahal 2011, Penn 2009

[3] Diabetes Prevention Programme 2002, Kuller 2012

[4] Morgan 2011

[5] Vissers 2010

[6] Lindstrom 2003

[7] Dale 2008

[8] Bertz 2012

[9] Munsch 2003

Evidence statement 1.22 Effect of ease of activity during a behavioural weight management programme on the rate of weight regain after programme end

There is moderate observational evidence that needing specific equipment or settings for physical activity sessions during the active intervention is associated with faster weight regain after the programme end (0.19 kg/month, 95% CI 0.048 to 0.33; p=0.01). Meta-regression included 11 RCTs in the following countries: 3 UK (1 [++][1], 2 [+][2]), 2 USA (both [++][3]) and 1 each from Australia (++)[4], Belgium (+)[5], Finland (++)[6], New Zealand (+)[7], Sweden (++)[8] and Switzerland (−)[9]. Of these, 3 interventions from 2 studies needed specific equipment or settings to perform activity during the active intervention: 1 New Zealand study (+)[7] and 1 in Belgium (+)[5].

[1] Jolly 2011

[2] Nanchahal 2011, Penn 2009

[3] Diabetes Prevention Programme 2002, Kuller 2012

4 Morgan 2011

5 Vissers 2010

[6] Lindstrom 2003

[7] Dale 2008

[8] Bertz 2012

[9] Munsch 2003

Evidence statement 1.23 Effective weight-loss maintenance interventions

There is a lack of high quality reviews on the effectiveness of weight-loss maintenance interventions. There is weak evidence that after weight-loss, the use of a low-fat diet, an increased protein intake, and increased contact frequency and problem solving as part of a weight maintenance programme can be effective in reducing weight regain. There is weak evidence that weight-loss maintenance programmes containing diet and exercise are more effective than those containing diet alone. Increased protein intake, low fat diets, increased contact frequency and problem solving are reviewed in 1 systematic review conducted in the USA (+)[1] looking at the findings of 42 studies. Physical activity is reviewed in 2 systematic reviews conducted in the USA (1 [+][1], 1 [−][2]); these include 42 studies, of which 4 were present in both reviews.

[1] Turk 2009

[2] Catenacci and Wyatt 2007

Evidence statement 2.1 Motivation for weight-loss

There is moderate evidence that people in BWMPs are largely motivated to lose weight for reasons of health and appearance. There is moderate evidence that older service users tend to be more motivated by improvements in health and younger service users tend to be more motivated by improvements in appearance. Evidence on health as a motivator is from 6 studies in the UK (5 [++][1], 1 [+][2]) and 1 systematic review[3]. Evidence on appearance as a motivation is from 6 studies in the UK (4 [++][4], 1 [+][2], 1 [−][5]).

[1] Withnall 2008, Gimlin 2007, Greener 2010, Herriot 2008, Gray 2013

[2] Rowe 2010

[3] Study commercial in confidence Note: quality was not assessed for this systematic review because it was used to provide context rather than as a primary source of evidence.

[4] Withnall 2008, Gimlin 2007, Greener 2010,Herriot 2008

[5] Study commercial in confidence

Evidence statement 2.2 Views of group programmes

There is inconsistent evidence as to whether group support is perceived to be beneficial in BWMPs. In some studies, service users perceive group support to be one of the main benefits of attending a weight-loss programme. However, a number of studies described service users' negative responses to group support and desire for a personalised approach. Evidence in favour of group support is from 15 studies in the UK (9 [++][1], 4 [+][2], 2 [−][3]). Evidence in favour of more personalised support is from 8 studies in the UK (4 [++][4], 2 [+][5], 2 [−][6]).

[1] Ahern 2013,Gimlin 2007,Greener 2010, Herriot 2008, Hunt 2013, NHS North Somerset Doc 2 2013, Visram 2009, Gray 2013, Withnall 2008

[2] Study commercial in confidence

[3] Hindle 2012, Study commercial in confidence

[4] Bidgood 2005, Counterweight Project 2008, Visram 2009, Gray 2013

[5] Study commercial in confidence

[6] NHS SCH. Shropshire Community Health NHS Trust Doc 1 2013, Shropshire Community Health NHS Trust Doc 2. 2013, Study commercial in confidence

Evidence statement 2.3 Views of male-only interventions

There is strong evidence that male service users believe the ability to have male-oriented conversations is a benefit to men who choose to attend men-only weight-loss services. There is strong evidence that participants of men-only groups perceive an approach that feeds into the male identity and encourages competitiveness both with themselves and with other men to be more effective. This is based on 3 studies in the UK (2 [++][1], 1 [+][2]) and 1 systematic review[3].

[1] Hunt 2013, Gray 2013

[2] Study commercial in confidence

[3] Study commercial in confidence Note: quality was not assessed for this systematic review because it was used to provide context rather than as a primary source of evidence.

Evidence statement 2.4 Views of meeting structure and content

There is weak evidence that users perceive the routine of regular meetings as a benefit of attending a BWMP. This is based on 2 studies in the UK (1 [++][1], 1 [−][2]). There is strong evidence that a regular weigh in by a group leader or health professional is seen by service users as a strong motivator for changing their behaviour and reaching their targets. This is based on 6 studies in the UK, all (++)[3].

[1] Counterweight Project 2008

[2] Hindle 2012

[3] Ahern 2013, Allan 2010, Herriot 2008 NHS North Somerset Doc 2 2013, Penn 2008, Reed 1999

Evidence statement 2.5 Views of programme characteristics

There is strong evidence that users of BWMPs with supervised physical activity perceive this to be an effective component, and strong evidence that users of BWMPs without supervised physical activity would like it to have been incorporated. This is based on 7 studies in the UK (4 [++][4], 1 [+][5], 2 [−][6]). There is strong evidence that users perceive the personality and approach of the group leader to affect the effectiveness of the programme. This is based on 11 studies in the UK (2 [++][1], 3 [+][2], 2 [−][3]). There is strong evidence that participants of BWMPs feel that longer term support would be beneficial, regardless of initial programme length. This is based on 11 studies in the UK (6 [++][7], 2 [+][8], 3 [−][9]).

[1] Herriot 2008, Gray 2013

[2] Study commercial in confidence, Weight Management Services Research 2011, Rowe 2010

[3] Hindle 2012, Shropshire Community Health NHS Trust Doc 2. 2013

[4] Ahern 2013, Allan 2010, NHS North Somerset Doc 2 2013, Withnall 2008

[5] Study commercial in confidence

[6] Study commercial in confidence, NHS SCH. Shropshire Community Health NHS Trust Doc 1 2013, Shropshire Community Health NHS Trust Doc 2. 2013

[7] Bidgood 2005, Counterweight Project 2008, Gray 2013, Greener 2010, Herriot 2008, Nield 2012

[8] Study commercial in confidence

[9] Study commercial in confidence, NHS SCH. Shropshire Community Health NHS Trust Doc 1 2013, Shropshire Community Health NHS Trust Doc 2. 2013

Evidence statement 2.6 Views of dietary components of BWMPs

There is strong evidence that users and potential users of BWMPs prefer diets with a simple message, that do not ban particular foods, that are considered family friendly, that do not incur any extra cost and that are not perceived to be repetitive or boring. Users and potential users of BWMPs perceive these types of diet to be more successful. This is based on 6 studies in the UK (3 [++][1], 2 [+][2], 1 [−][3]).

[1] Withnall 2008, Herriot 2008, Gray 2013

[2] Study commercial in confidence, Rowe 2010

[3] Study commercial in confidence

Evidence statement 2.7 Barriers to attendance

There is strong evidence that practical issues are perceived by users to be the main barriers to attendance at BWMPs. These practical issues are childcare, work, cost and time. This is based on 12 studies in the UK (8 [++][1], 3 [+][2], 1 [−][3]). There is moderate evidence that feeling judged, stigmatised or embarrassed is a further barrier to attendance. This is based on 7 studies in the UK (5 [++][4], 1 [+][5], 1 [−][3]). Finally, there is weak evidence that users perceive not losing weight to be a barrier to further attendance. This is based on 2 studies in the UK (1 [++][6], 1 [+][7]).

[1] Ahern 2013, Counterweight Project 2008, Gray 2013, Greener 2010, Lavin 2006, NHS North Somerset Doc 2 2013, Thompson 2000, Withnall 2008

[2] Study commercial in confidence, Weight Management Services Research 2011, Rowe 2010

[3] Study commercial in confidence

[4] Bidgood 2005, Counterweight Project 2008, Gray 2013, Thompson 2000, Withnall 2008

[5] Weight Management Services Research 2011

[6] Lavin 2006

[7] Study commercial in confidence

Evidence statement 2.8 Facilitators to delivery: structural

There is no evidence as to what structural components facilitate BWMP delivery. However, there is moderate evidence that the following structural components are perceived to act as facilitators to provision and delivery of BWMPs: active GP and primary care staff involvement and clear routes of communication between primary care staff and BWMP providers. This is based on qualitative data from 3 UK studies (2 [++][1], 1 [+][2]).

[1] Counterweight Project 2008, Lavin 2006

[2] Study commercial in confidence

Evidence statement 2.9 Facilitators to delivery: opinions and attitudes

There is no evidence as to whether the opinions and attitudes of primary care staff and commissioners facilitate BWMP provision. However, there is moderate evidence that some primary care staff and commissioners hold the following positive opinions and attitudes: perceptions that BWMPs are effective at inducing weight loss; confidence among primary care staff in their ability to raise and tackle the topic of obesity with patients; and perceiving obesity treatment to fall within their role. This is based on qualitative data from 5 studies conducted in the UK (3 [++][1], 2 [+][2]), in which the majority of respondents were practitioners engaged with programme delivery.

[1] Counterweight Project 2008, Greener 2010, Hoppe 2007

[2] Report from the Campaign Company 2008, Study commercial in confidence

Evidence statement 2.10 Barriers to service delivery: opinions and attitudes

There is no evidence as to whether the opinions and attitudes of primary care staff and commissioners act as barriers to BWMP provision. There is moderate evidence that some people directly and indirectly involved with

provision of BWMPs hold negative attitudes about the effectiveness of these programmes. There is also moderate evidence that some healthcare providers perceive obesity management to be outside their primary role and that some believe there are issues with insufficient training, knowledge, or ability to motivate patients. Evidence on perceived lack of effectiveness comes from 7 studies conducted in the UK (4 [+])[1], 2 [+][2], 1 [−][3]). Evidence on perceived role and abilities comes from 5 studies conducted in the UK (4 [++][1], 1 [−][3]).

[1] Counterweight Project 2008, Epstein 2005, Greener 2010, Hoppe 2007

[2] Report from the Campaign Company 2008, Study commercial in confidence

[3] Hindle 2012

Evidence statement 2.11 Best practice for referral to BWMPs

There was no evidence with which to judge the effect of referral programmes on subsequent take up of and adherence to BWMPs. Five studies describe processes currently in place for referral into BWMPs: 4 of these require some form of approval or referral from primary care staff. There is weak evidence that participants who are referred by a GP have an increased sense of obligation and responsibility to attend due to the use of public funding and accountability to the GP. This is based on qualitative data from 4 studies conducted in the UK, (2 [++][1], 2 [+][2]). Two studies were evaluations of the same commercial weight management programme. There is moderate evidence that some primary care staff lack adequate understanding of the referral process to BWMPs. Evidence comes from qualitative data from 4 studies conducted in the UK (1 [++][3], 2 [+][4], 1 [−][5]).

[1] Counterweight Project 2008, Visram 2009

[2] Study commercial in confidence

[3] Gray 2013

[4] Report from the Campaign Company 2008, Study commercial in confidence

[5] Hindle 2012

Evidence statement 2.12 Commissioning

There is no evidence that commissioning in one way rather than another leads to better outcomes for users of behavioural weight loss services. There are 4 pieces of guidance for commissioners that are derived from expert opinion informed by reviews of relevant literature, although 1 is primarily on commissioning hospital-based weight management services[1]. One piece of guidance states that services should be commissioned that operate in line with NICE guidelines on the management of obesity[2]. One states that services should report on a comprehensive range of baseline and follow-up data[3], although another reflects uncertainty about the practicability of assessing changes in diet and physical activity[4].

[1] Physicians 2013

[2] Cavill 2010

[3] Roberts 2009

[4] Department of Health 2013

Evidence statement 2.13 Commissioning

One piece of guidance states that commissioned services should report data on attendance and weight loss and that these should be used as evidence that the service is effective[1]. In randomised trials in which the 95% confidence intervals shows more than 2 kg difference in weight loss compared with controls at 12 months, 5 out of 5 interventions that report sufficient data (see evidence statements 1.1 to 1.3) would have met the attendance standard defined by the guidance as indicating effectiveness (that is, 60% of participants complete the intervention*) and 14 out of 14 interventions would have met at least 1 of the weight loss standards (that is, 3% mean weight loss and at least 30% of participants lose at least 5% of their initial weight)**. In randomised trials in which the 95% confidence intervals showed a less than 2 kg difference in weight loss compared with controls at 12 months, 1 out of 1 interventions would have met the attendance standard and 0 of 8 would have

met the weight loss standard defined as indicating effectiveness in the guidance. This suggests that the standards defined by the guidance are able to help identify interventions that are more likely to be effective. Findings for this statement are from the 29 RCTs listed in Evidence Statement 1.1

[1] Department of Health 2013

* This means a minimum of 60% of all engaged participants complete the intervention. Engaged participants are those who have attended at least 2 sessions. Completion is measured as participants attending at least 1 of the last 3 sessions of the intervention.

** At the end of the intervention, participants who have attended at least 1 session of the intervention have a mean weight loss of at least 3% of their initial weight, and at least 30% of all participants have a weight loss of at least 5% of their initial weight. Both these minimums are measured using baseline observation carried forward analysis (classed as all participants who have attended at least 1 session of the intervention).

Evidence statement 2.14 Training

There is no evidence that any particular type of training leads to more effective BWMPs. There is strong evidence from a meta-analysis of trials that BWMPs delivered by people who have been trained can lead to significantly greater weight loss than multiple weight management sessions delivered by people who have not received specific weight management training (mean difference −4.30 kg, 95% CI −4.66 to −3.93), although statistical heterogeneity is substantial (I^2=94%). Evidence comes from 8 randomised controlled trials: 5 conducted in the USA (all [++])[1]; 1 in New Zealand (+)[2]; 1 in Switzerland (−)[3]; and 1 multicentre study conducted in Germany, the UK, and Australia (+)[4].

[1] Diabetes Prevention Programme 2002, Heshka 2003, Rock 2010, Vilareall 2010, Wadden 2011

[2] Dale 2009

[3] Munsch 2003

[4] Jebb 2011

Expert papers and commissioned report

- Expert papers 1–4
- Commissioned report

Economic modelling

Overall, the modelling showed that lifestyle weight management interventions that help people lose weight and then maintain the weight loss in the long term would be cost effective, if they can be identified.

The economic model considered cohorts of (virtual) adults of different ages and with a body mass index (BMI) of 25, 30, 35 and 40 kg/m^2. The model tested the impact of a 12-week lifestyle weight management programme. All cohorts were followed for the whole of their lives and they contract diseases and conditions at different rates, depending on their BMI.

From a public sector perspective, the modelling showed that if the original weight loss achieved by attending a lifestyle weight management programme was maintained for life, most of these interventions would be cost effective. That is, provided they cost less than £500 per person and everyone lost more than 1 kg in weight. This is true for all age groups and both sexes.

However, if they were to regain the lost weight within a year or so, the modelling indicates that few, if any, of these interventions would be cost effective: they would need to cost less than £100 per person and the average weight lost would need to be in excess of 5 kg.

More detail (including any observed differences by age and gender) is given in the modelling report: Economic modelling and cost consequence analysis.

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 long-term (that is, 3 years or longer) trials of lifestyle weight management programmes to determine cost effectiveness.

   (Source: evidence reviews 1a and 1c; economic modelling)

2. There is a lack of trials directly comparing lifestyle weight management programmes in the UK.

   (Source: evidence reviews 1a, 1b and 1c)

3. There is a lack of evidence on whether there are any adverse or unintended effects associated with long-term weight management programmes. There is also a lack of evidence on 'weight cycling' (repeated attempts to lose weight) in relation to these programmes.

   (Source: evidence reviews 1a, 1b and 1c; expert paper 1)

4. There is a general lack of evidence on which specific components of a lifestyle weight management programme ensure effectiveness. In particular, it is unclear what effect programme length and intensity has on effectiveness.

   (Source: evidence reviews 1a and 1b)

5. There is a lack of evidence on the impact of sexual orientation, disability, religion, place of residence, occupation, education, socioeconomic position or social capital on the effectiveness of lifestyle weight management programmes. There is also a lack of analysis of participants by age and gender.

   (Source: evidence review 1a)

6. The existing evidence base is limited by studies characterised by: short-term follow up, small sample sizes, the collection of data at only a limited number of time points (usually 2), demographic samples that limit the ability to generalise and non-reporting of reasons for people dropping out.

(Source: evidence reviews 1a and 1b)

7. There is a lack of evidence on whether any particular approach to commissioning leads to better outcomes for participants in lifestyle weight management programmes.

   (Source: evidence review 2)

8. There is a lack of evidence as to whether any particular type of training for practitioners leads to more effective programmes.

   (Source: evidence review 2)

The Committee made 5 recommendations for research into areas that it believes will be a priority for developing future guidance. These are listed in Recommendations for research.

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, representatives of the public, academics and technical experts as follows.

Lucy Aphramore
Director, Well Founded; Visiting Research Fellow, Glyndŵr University (until September 2013)

Barry Attwood
Community Member

Matthew Broughton
Health and Wellbeing Manager, West Lindsey District Council

Dr Ruth Chambers OBE
GP Partner and Clinical Associate, Stoke-on-Trent Clinical Commissioning

Group; Honorary Professor, Keele University; Honorary Professor of Primary Care, Staffordshire University

Jane DeVille Almond

Senior Lecturer in Adult Nursing, University of Wolverhampton

Gill Fine (Chair)

Independent Public Health Nutritionist

Ulla Griffiths

Lecturer in Health Economics, London School of Hygiene and Tropical Medicine

Vicky Hobart

Joint Director of Public Health, Redbridge Council and Waltham Forest Council

Kate Jolly

Professor of Public Health, University of Birmingham

Laura Sanger

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12 About this guidance

Why is this guidance being produced?

NICE public health guidance makes recommendations on the promotion of good health and the prevention of ill health.

The Department of Health (DH) asked the National Institute for Health and Care Excellence (NICE) to produce this guidance.

The guidance should be implemented alongside other guidance and regulations (for more details see Implementation 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 and the NICE project team.

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 was divided into 3 sections and was carried out by the University of Oxford. The principal authors were: Paul Aveyard, Jamie Hartmann-Boyce and David Johns.
        - Review 1a, 'The clinical effectiveness of long-term weight management schemes for adults'.
        - Review 1b, 'How components of behavioural weight management programmes affect weight change'.

    - ◊ Review 1c, 'Weight regain after behavioural weight management programmes'.
  - Review 2: 'Managing overweight and obese adults' was carried out by the University of Oxford. The principal authors were: Paul Aveyard, Jamie Hartmann-Boyce and David Johns.
- Economic modelling: 'Economic modelling and cost consequence analysis' was carried out by the UK Health Forum and the University of East Anglia. The authors were: Martin Brown, Tim Marsh, Lise Retat, Ric Fordham, Marc Suhrcke, David Turner, Richard Little and Oyebanji Filani.

- Commissioned report: 'Practical and process issues in the provision of lifestyle weight management services for adults' was carried out by GK research. The principal author was Graham Kelly.

- Expert papers:

  - Expert paper 1 'Weight bias and stigma and the effectiveness of weight management programmes' by Jane Ogden, Professor in Health Psychology, University of Surrey.
  - Expert paper 2 'Experience from practice – psychological issues' by Rachel Holt, Consultant Clinical Psychologist/Service Lead at Derbyshire Tier 3 Weight Reduction Service.
  - Expert paper 3 'Weight bias and the impact of weight stigma on emotional and physical health' by Dr Rebecca Puhl, Director of Research and Weight Stigma Initiatives at the Rudd Center for Food Policy and Obesity, Yale University.
  - Expert paper 4 'Commissioning and working with health and wellbeing boards' by Stephen Watkins, Director of Public Health, Stockport.

The reviews, economic analysis and expert papers are available on the NICE website.

Note: the views expressed in the expert papers above are the views of the authors and not those of NICE.

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 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: 11 December 2013.

Next PDG meeting: 4 February 2014.

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 1: 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