NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

PUBLIC HEALTH DRAFT GUIDANCE

Managing overweight and obesity among children and young people: lifestyle weight management services

Introduction: scope and purpose of this draft guidance

What is this guidance about?

This guidance aims to provide recommendations on managing overweight issues and obesity in children and young people using lifestyle weight management services. The recommendations cover:

- Planning
- Commissioning
- Lifestyle weight management programmes: core components
- Developing a tailored programme plan to meet individual needs
- Encouraging adherence
- Raising awareness
- Formal referrals
- Providing ongoing support
- Programme staff: training, knowledge and skills
- Training in how to make programme referrals
- Supporting programme staff and those making programme referrals
- Monitoring and evaluation.

This guidance does not provide detail on preventing obesity, lifestyle weight management services for adults, pharmacological or surgical treatments for obesity. (See Related NICE guidance for other recommendations that may be relevant to managing obesity among adults, children and young people.)

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, local authority managers, directors of public health and their teams, those providing weight management services to children and young people, health professionals and people working with children and young people. The latter includes those working in schools, early years settings and children's centres, as well as youth workers and social workers.

The guidance may also be of interest to children and young people, their parents, carers, families and other members of the public.

Contents

1 Draft recommendations

The Programme Development Group (PDG) considers that the recommendations are likely to be cost effective.

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

See also the NICE website for the evidence reviews and economic modelling report.

For the research recommendations see Recommendations for research and Gaps in the evidence respectively.

The recommendations in this guidance cover lifestyle weight management programmes for overweight and obese children and young people aged under 18. However, no evidence was identified about the effectiveness of such programmes specifically aimed at children under 6. The absence of such programmes from the recommendations is a result of this lack of evidence and should not be taken as a judgement on whether or not they are effective and cost effective.

Principles of weight management for children and young people

Assessing the **body mass index** (BMI – weight in kg divided by height in metres^2) of children is more complicated than for adults because it changes as they grow and mature. In addition, growth patterns differ between boys and girls.

Children's BMI is assessed using thresholds that take into account their age and sex. These are usually derived from a reference population, known as a child growth reference, with the data presented in BMI centile charts. In a clinical assessment, a child or young person on or above the 98th centile is

classified as obese. Any child or young person on or above the 91st centile, but below the 98th centile, is classified as overweight[1].

When monitoring and comparing groups of children and young people, **BMI z scores** may be used. These are a measure of how many standard deviations a child or young person's BMI is above or below the average BMI for their age and gender.

In this guidance, the term 'BMI centile' is used in recommendations which focus on working with individual children or young people. 'BMI z score' is used in recommendations relating to monitoring and research.

Many lifestyle weight management interventions aim to maintain the child's existing weight in the short term, as they grow taller. Often described as 'growing into their weight', this is an appropriate short-term aim as it results in an improved BMI centile over time.

Further information can be found in A simple guide to classifying weight management in children.

Whose health will benefit?

Children and young people who are overweight or obese.

Recommendation 1 Planning lifestyle weight management services for children and young people

Who should take action?

- Directors of public health and public health teams working on obesity and child health and wellbeing.
- Health and wellbeing boards.

[1] Several classification systems are used in the UK to define 'obesity' and 'overweight' in children. In surveys such as the National Child Measurement Programme (NCMP) and the Health Survey for England (HSE), children over the 85th centile, and on or below the 95th centile, are classified as being 'overweight'. Children over the 95th centile are classified as being 'obese'.

- Local authority commissioners.
- **Clinical commissioning groups**.
- **NHS England**.

What action should they take?

- Ensure family-based, multi-component lifestyle weight management services for children and young people are available as part of a community-wide, multi-agency approach to promoting a healthy weight and preventing and managing obesity.

- Dedicate long-term (at least 5 years) funding and resources to support the development, implementation, delivery, promotion, monitoring and evaluation of these services.

- Use data from the joint strategic needs assessment [2] and the National Child Measurement Programme to identify local need.

See also recommendation 1 in Obesity: working with local communities (NICE public health guidance 42).

Recommendation 2 Commissioning lifestyle weight management programmes for children and young people

Who should take action?

- Directors of public health and public health teams working on obesity and child health and wellbeing.
- Health and wellbeing boards.
- Local authority commissioners.
- NHS commissioners.

[2] Joint strategic needs assessments (JSNAs) identify the current and future health needs of a local population. They are used as the basis for the priorities and targets set by local areas, expressed in local health and wellbeing strategies. They are jointly researched and written by the local NHS and local authority.

What action should they take?

- Commission services offering programmes to meet local needs. This includes the needs of children of different ages and stages of development. Needs should be identified through the joint strategic needs assessment and should be in line with the health and wellbeing strategy.

- Ensure programmes have been designed and developed with input from a multi-disciplinary team that specialises in children and young people and can provide expertise for each component of the programme. For example:
  - a state registered dietitian or registered nutritionist
  - a physical activity specialist
  - a behaviour-change expert such as a health psychologist, health promotion specialist or exercise psychologist, with input from a child psychologist.

- Ensure providers can demonstrate that staff are appropriately trained to deliver the specific programme commissioned.

- Ensure sufficient funding (for example, 10% of the budget and resources for the lifestyle weight management programme) is dedicated to monitoring and evaluation.

- Clearly define programme objectives, outputs, outcomes and monitoring and evaluation requirements in programme specifications and in contracts. Ensure key performance indicators are agreed with programme providers (see recommendation 16, actions 1 and 2).

- Ensure the contract or programme specification requires that height and weight are measured and that BMI for age and gender (BMI z score) is recorded. This should be the case for all children and young people initially recruited to the programme and at the following times:
  - baseline (start of the programme)
  - completion of the programme

  - 1 year post-completion of the programme.

- Ensure any barriers discouraging, or facilitators encouraging, the uptake of programmes – identified through community engagement with families – are addressed in the programme specifications. The aim is to ensure programmes are tailored to meet local needs.

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

Recommendation 3 Lifestyle weight management programmes: core components

Who should take action?

- Directors of public health.
- Local authority commissioners.
- NHS commissioners
- Providers of lifestyle weight management programmes.

What action should they take?

- Ensure all weight management programmes provided for overweight and obese children and young people are multi-component. They should focus on:
  - diet and eating habits
  - physical activity and reducing the amount of time spent being sedentary
  - strategies for changing the behaviour of the child or young person and all close family members.

- Ensure the following core components, developed with the input of a multi-disciplinary team (see recommendation 2,) are included:

- Behaviour-change techniques to increase motivation and confidence in the ability to change. This includes strategies to help the family identify how changes can be implemented and sustained at home.
- Positive parenting skills training, including problem-solving skills, to support changes in behaviour.
- An emphasis on the importance of encouraging all family members to eat healthily and to be physically active, regardless of their weight.
- A tailored programme plan to meet individual needs, appropriate to their age, gender, ethnicity and how obese or overweight they are. This should include goal-setting, monitoring and feedback.
- Educational information and help to develop and master skills such as how to interpret nutritional labelling and how to modify culturally appropriate recipes.
- A range of physical activities which are inclusive (such as games, dancing and aerobics) which the children or young people enjoy, and which can help them become increasingly more active.
- Information for the wider family to explain the aims and objectives of the programme and how they can support the child or young person in their efforts to achieve a healthier weight.
- Ongoing support and follow-up for participants who have completed the programme.

Recommendation 4 Developing a tailored programme plan to meet individual needs

Who should take action?

Providers of lifestyle weight management programmes.

What action should they take?

- Take account of the child or young person's self-esteem, self-perception and any previous attempts to manage their weight.

- Identify any concerns about their mental wellbeing which may be related to their weight, for example, psychological distress, depression, bulimia or self-harming. Provide opportunities, in either a group or one-to-one session, for the child or young person to talk about any victimisation or distress (including any history of bullying or teasing).

- Refer them to their GP if appropriate, for onward referral to child and adolescent mental health services (CAMHS). (Note: such concerns may be identified at any stage of a weight management programme.)

- Offer to weigh, measure and determine the BMI of parents, carers and other family members, as well as the child or young person.

- Explore the family's history of attempts to manage their weight, and their attitudes towards food, physical activity and the amount of time spent being sedentary.

- Encourage children and young people over the age of 12 to monitor their eating, physical activity and any sedentary behaviour. For example, encourage them to keep a record of time spent watching television or playing computer games, and what they snack on and when, to identify areas that need addressing. For younger children, parents and carers should monitor these behaviours.

- Work with children over the age of 12 to identify situations where it would be possible for them to eat more healthily or to become less sedentary and more active. (For example, this might involve gradually reducing TV viewing at certain times and replacing this with more active pastimes). Work with the parents and carers of younger children to achieve the same.

- For children and young people aged 5–18, aim to gradually increase the amount of moderate to vigorous-intensity physical activity they do every day. Initially aim for at least 60 minutes and, ultimately, several hours a

day. Focus on activities they enjoy and which are easily accessible. (See the UK physical activity guidelines for further information.)

- Agree dietary changes which are age-appropriate, culturally sensitive and consistent with healthy eating advice. Ensure nutrient needs for growth and development are met by including healthier choices, in appropriate amounts, from each of the food groups (see NHS Choices Eatwell plate). Changes to diet should take into account the child or young person's likes and dislikes.

- Set small, but realistic goals and manage expectations of what can be realistically achieved over the duration of the programme. Goals should be mutually agreed with the child or young person and their family and should relate to outcomes that they value and that motivate them to attend.

- Regularly monitor progress against the goals and provide feedback to the young person or to the child and their parents or carers. Praise progress and achievements and update the goals as the child or young person progresses through the programme. If they do not meet their goals, discuss the possible causes for this and review them.

- Stress the importance of maintaining changes, no matter how small, over the longer term.

Recommendation 5 Encouraging adherence to lifestyle weight management programmes

Who should take action?

- Providers of lifestyle weight management programmes.

- Directors of public health.

- Local authority commissioners.

- NHS commissioners.

What action should they take?

- Ensure programmes are offered to children or young people and their families on a group, or an individual basis, according to their needs and preferences.

- Ensure a range of programmes are on offer for children and young people of different ages and different stages of development. Where offered as group sessions, programmes should aim to work with groups of peers.

- Offer programmes in venues which have the necessary facilities, are easily accessible and where the child or young person and their family feel comfortable. For example, local community venues which have space for physical activities or games, and which can be reached quickly and easily by walking, cycling or using public transport.

- Offer programmes at a range of times that are convenient for families with children of different ages and for working parents and carers. For example, some sessions could be offered in the evenings or at weekends.

- Adopt a flexible approach so that participants can accommodate other commitments. For example, use ‘rolling programmes’ where they may attend more frequently initially and less frequently as their skills and confidence in making changes grows.

- Emphasise the importance of parental (or carer) support and commitment to adhere to the programme.

- Maintain regular contact with participants. Promptly follow-up those who miss sessions, to establish why and to restore commitment. Focus in particular, on participants from disadvantaged groups and those who miss sessions early on in the programme.

- Try to retain the same team of staff throughout each cycle of the programme.

Recommendation 6 Raising awareness of lifestyle weight management programmes: commissioners and programme providers

Who should take action?

- Directors of public health and their teams.
- Local authority commissioners.
- NHS commissioners.
- NHS and local authority communications teams.
- Providers of lifestyle weight management programmes.

What action should they take?

- Public health teams should maintain an up-to-date list of local weight management programmes for overweight and obese children and young people. This should include information about prices for participants and whether or not free places are available.

- All of the above should use children's centres, libraries, the local media, professional and voluntary organisations working with children and young people and schools to raise awareness of these programmes. Any publicity should clearly describe:
    - who the programme is for (age ranges, any eligibility criteria and the level of parental involvement required)
    - how to enrol (including whether participants can self-refer or need a formal referral from a health professional)
    - whether or not people have to pay
    - programme aims

  - type of activities involved (to alleviate any anxieties about the unknown and to ensure expectations are realistic) – 'healthy living' and any fun aspects should be emphasised
  - time and location, length of each session and number of sessions.

- Commissioners, public health teams and providers should raise awareness of the programmes among health professionals who may refer children and young people. This includes general practitioners and staff involved in the National Child Measurement Programme and the Healthy Child Programme. For example, publicise the programme through health professional networks and by offering training sessions on the programmes and how referrals can be made.

Recommendation 7 Raising awareness of lifestyle weight management programmes: health professionals

Who should take action?

Health professionals, in particular, general practitioners and those involved in delivering the National Child Measurement Programme and the Healthy Child Programme.

What action should they take?

Tell the parents or carers of children identified as being overweight or obese about local lifestyle weight management programmes. Explain what these involve, how to take part and whether or not they have to pay.

Recommendation 8 Raising awareness of lifestyle weight management programmes: other professionals and voluntary organisations

Who should take action?

- Schools, children's centres and looked-after children's teams.

- Other professionals and voluntary workers who work with children and young people. For example, youth workers, social workers, pastoral care workers and leaders of recreational activities.

What action should they take?

Raise awareness of lifestyle weight management programmes for overweight and obese children and young people. Also raise awareness of how to enroll on them.

Recommendation 9 Formal referrals to lifestyle weight management programmes

Who should take action?

Community nurses, community dietetic teams, GPs, health visitors, primary care teams, obesity specialists, paediatricians, school nurses and school healthcare teams.

What action should they take?

- Where there are concerns about a child or young person's weight, measure and weigh them in light clothing on regularly calibrated scales. Use the UK 1990 centile chart for children aged 4 years and over (UK growth chart resources) to determine BMI centile for their age and gender. Use the World Health Organization Child Growth Standard for those aged under 4.

- Take account of their BMI centile, any comorbidities or family history, and any psychosocial considerations, to determine if referral to a lifestyle weight management programme is clinically appropriate.

- Assess, in a non-judgemental manner, if the child or young person and their family accept that the child or young person is overweight or obese. If it is clinically appropriate, assess whether they are ready and willing to be referred to a lifestyle weight management programme. If they are ready and willing, offer a referral.

- Ensure the programme they are referred to offers the core components of an effective lifestyle weight management programme (see recommendation 3).

- Identify and address any fears or concerns the child, young person or their family may have about attending the programme (for example, fears of being the largest child on the programme, or having to do very strenuous activities).

- Give the family information about the programme, or tell them where they can get this information.

- Explain what can be realistically expected in terms of results over the duration of the programme itself. For example, explain that maintaining their existing weight is a realistic short-term aim.

- Explain that the more sessions of a programme they attend, the greater the likelihood of success.

- If the family is not ready to attend a programme, explain the potential benefits they will gain – and the risks of not addressing their child's weight. Tell them how they can enroll on a programme in the future. Offer a follow up appointment in 3 or 6 months time, according to their preference.

- Provide them with, or point them to, information and advice on healthy eating, physical activity and how to reduce sedentary behaviour. Examples include: the NHS Choices Eatwell plate, UK physical activity guidelines and the Change4Life website.

- If the child or young person shows signs of psychological distress, depression, bulimia or self-harming and meets the local referral criteria, refer them to child and adolescent mental health services.

Recommendation 10 Providing ongoing support: health professionals

Who should take action?

- Community nurses, community dietetic teams, GPs, health visitors, members of primary care teams, obesity specialists, paediatricians and school nurses and school healthcare teams.

- Providers of lifestyle weight management programmes.

What action should they take?

- With the consent of participants, providers should send feedback on their progress to the referring GP or healthcare professional.

- Health professionals should use feedback from the programmes to help regularly monitor progress. They should acknowledge that:
    - maintenance of existing weight is a realistic short-term aim and that avoiding further weight gain, other than that due to growth in height, can positively impact on BMI in the longer term
    - it is important to maintain changes in behaviour once the programme is completed
    - improvements in diet and physical activity can have positive health benefits, independent of any effect on weight or BMI
    - improvements in psycho-social outcomes (such as sense of wellbeing, self-efficacy, self-esteem and self–perception) are considered important health benefits for overweight and obese children and young people.

- After the programme has been completed, health professionals should continue to monitor the child or young person's BMI centile, both when the opportunity arises and at 1 year following completion.

- If the child or young person's BMI centile begins to increase, or if they or their parents or carers express concerns about their weight (or sustaining changes in their behaviour), discuss the possible causes. If necessary, consider referral to an alternative lifestyle weight management programme which may better address the needs of the family. Or consider referral to Tier 3 obesity management services.

Recommendation 11 Providing ongoing support: lifestyle weight management programmes

Who should take action?

- Providers of lifestyle weight management services.
- Directors of public health and their teams.
- Local authority commissioners.
- NHS commissioners.

What action should they take?

Offer all participants ongoing support when they have completed the programme. This should be offered every 6 months for at least the first year and longer if possible, depending on the family's individual needs. This should include a range of options in terms of ongoing support and follow-up sessions. Offer these sessions at a range of times and in easily accessible and acceptable venues.

Recommendation 12 Programme staff: training

Who should take action?

Providers of lifestyle weight management programmes.

What action should they take?

- Ensure staff receive training to deliver the specific weight management programme they will be working on. Ensure this has been developed with

the input of a multi-disciplinary team of qualified professionals (see Recommendation 2).

- Ensure programme staff treat overweight and obese children, young people and their families with empathy by training them in:
  - the reasons why some children and young people may have difficulty managing their weight
  - the experiences they may face in relation to their weight
  - the anxieties they and their families may have about attending the programme.

- Train staff:
  - to accurately measure and record height and weight and to determine BMI centile using age and gender-specific charts
  - to assess whether lifestyle weight management programmes are appropriate for the potential participant
  - to assess whether they are a potential participant or should be referred to their GP for onward referral, if appropriate, to Tier 3 obesity management or other specialist services
  - in appropriate safeguarding practices and processes and in information governance.

Recommendation 13 Programme staff: knowledge and skills

Who should take action?

Providers of lifestyle weight management programmes.

What action should they take?

- Ensure staff have the necessary knowledge and skills to deliver multi-component programmes. This should cover obesity management, diet and physical activity and training in cognitive and behaviour-change strategies, as appropriate.

- Ensure staff are able to communicate effectively and work collaboratively with the family, taking a non-judgemental approach and tailoring interventions for individual needs. They should also be able to set an appropriate pace when delivering the programme. They should allow changes in behaviour to become embedded, before introducing further changes.

- Ensure staff can review progress, and provide constructive feedback, identify possible reasons for relapse and use problem-solving techniques to address these.

- Identify any gaps in knowledge or skills (or a lack of confidence) to deliver particular aspects of the programme and ensure these gaps are addressed through training.

Recommendation 14 Training in how to make programme referrals

Who should take action?

Professional bodies and those responsible for setting competencies and designing continuous professional development programmes for health professionals.

What action should they take?

- Ensure health professionals understand why some children and young people may have difficulty managing their weight and the experiences that they may face in relation to their weight. Ensure they can raise the issue of weight management confidently, sensitively and with empathy.

- Ensure health professionals can accurately measure and record height and weight and determine BMI centile using age and gender-specific charts.

- Ensure health professionals have the necessary knowledge and skills to assess whether referral to a lifestyle weight management programme is appropriate for a particular child, young person and their family.

- Ensure health professionals can identify suitable programmes for children, young people and their families and can provide them with information and ongoing support (see recommendations 9 and 10).

Recommendation 15 Supporting programme staff and those making programme referrals

Who should take action?

- Employers of staff working on, or referring children and young people to, lifestyle weight management programmes.

- Local authority commissioners.

- NHS commissioners.

- Providers of lifestyle weight management programmes.

What action should they take?

- Where those involved in referring to, or delivering, lifestyle weight management programmes lack the confidence and skills to discuss weight management, offer them support and training.

- If the lack of confidence is due to staff being overweight or obese themselves, offer them access to weight management programmes. These programmes should be part of a wider workforce health programme to help all staff achieve and maintain a healthy weight.

See also recommendation 9 in Obesity: working with local communities (NICE public health guidance 42).

Recommendation 16 Monitoring and evaluating programmes

Who should take action?

- Directors of public health and public health teams working on obesity and child health and wellbeing.
- Health and wellbeing boards.
- Local authority commissioners.
- Clinical commissioning groups.
- NHS England.
- Providers of lifestyle weight management programmes.

What action should they take?

- Ensure **monitoring** focuses on the primary aim of the programme: to maintain BMI z scores at programme completion and to reduce BMI z scores at 1 year post-completion. Include the following in the data reported:
    - numbers recruited, percentage completing the programme and percentage followed up 1 year after completing the programme
    - percentage of all those recruited who maintain (or reduce or increase) their baseline BMI, adjusted for age and gender (BMI z score), at completion of the programme
    - percentage of all those recruited who reduce (or maintain or increase) their BMI, adjusted for age and gender (BMI z score), at 1 year post-completion of the programme.
- Ensure other measured outcomes relate to the programme's main objective which is to support or contribute towards reductions in BMI. These could

include: improvements in diet and physical activity, a reduction in sedentary behaviour and improvements in self-esteem.

- Ensure data collection tools are validated for the age range or population group the programme addresses and are feasible and affordable in practice settings. Do not rely on self-reported measures of height or weight, or interpretations of BMI based on them.

- Monitor any variation in the numbers recruited, numbers completing and the proportion of people retained by the programme according to population subgroup.

- Collect data on variations in outcomes according to 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.

- Collect data on the route through which participants were referred to programmes. Use this information to identify areas where awareness of available programmes is low and where referral rates might be increased.

- Collect data on the views of participants of the programme: areas they found helpful and areas for improvement. Ensure the views of everyone who has participated are collected (including 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.

- Evaluate the service using data on outcomes and the cost of promotion and delivery.

- Regularly review monitoring and **evaluation** data and use it to amend and improve the service.

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

2 Public health need and practice

Obesity and overweight statistics

In 2011 in England, around 3 out of 10 boys and girls aged 2 to 15 years were either overweight or obese. The proportion of those who are overweight has remained largely unchanged since the mid-1990s. However, childhood obesity has risen by around 1 percentage point every 2 years up to 2007 (NHS Information Centre 2013; Department of Health 2011).

In the 2011/2012 school year, around 23% of children in reception and 34% in year 6 were either overweight or obese. Around 9.5% and 19%, respectively, were obese. The prevalence of obesity was linked with socioeconomic deprivation and was more prevalent in urban areas. Obesity was also more prevalent among children from black, Asian, 'mixed' and 'other' minority ethnic groups than among their white counterparts (NHS Information Centre 2012).

Although the prevalence of obesity now appears to be levelling off, in 2011 around 17% of boys and just under 16% of girls aged 2 to15 years were classed as obese (NHS Information Centre 2013).

Up to 79% of children who are obese in their early teens are likely to remain obese as adults (Chief Medical Officer 2008). Consequently, they will be at greater risk of conditions such as type 2 diabetes, coronary heart disease and some cancers in adulthood (Foresight 2007). Studies have also shown that a child with at least 1 obese parent is more likely to be obese themselves (Perez-Pastor et al. 2009).

Childhood obesity and health

Childhood obesity is associated with asthma and sleep-disordered breathing, including sleep apnoea (Figueroa-Munoz et al. 2001). In addition, there is

evidence that it impacts on self-esteem and quality of life (Griffiths et al. 2010). In adolescence, it has been associated with depression (Sjoberg et al. 2005).

Overweight and obese children are likely to experience bullying and stigma (Griffiths et al. 2006) which can also impact on their self-esteem. Some of these issues may, in turn, lead to under-achievement at school (Bromfield, 2009).

Over the last decade, it has become increasingly common for obese children to develop type 2 diabetes (Diabetes UK 2011). Being overweight as a child has also been associated with the development of cardiovascular risk factors in childhood or early adulthood (Craig et al. 2008; Logue and Sattar 2011).

Weight management programmes

The 'Healthy child programme for 5–19 year olds' recommends that overweight or obese children should be referred to appropriate weight management services to help them achieve and maintain a healthier weight (Department of Health 2009).

Such programmes can also help improve self-esteem (Lowry et al. 2007). In addition, they have the potential to help improve how they see themselves which may, in turn, enhance their future well-being (even if weight loss is not apparent in the short-term) (Griffiths et al. 2010).

In 2008, an estimated 314 to 375 weight management programmes for children were operating in England (Aicken et al. 2008). Lifestyle approaches focus on diet, physical activity, behaviour change or any combination of these factors. They may include programmes, courses or clubs (including online services) that are:

- designed for overweight or obese children and young people or for their parents, carers or families

- designed primarily for adults but which accept, or may be used by, children and young people
- provided by the public, private or voluntary sector, in the community or in (or via) primary care organisations.

Some were small local schemes, others were available on a regional or national basis – such as those listed in the Department of Health's 'Child weight management programme and training providers framework' (Cross Government Obesity Unit 2009).

Financial consequences

Unless obesity is addressed in childhood, most of the financial consequences are likely to be incurred when treating and managing the co-morbidities that arise in adulthood. (These include type 2 diabetes, coronary heart disease and some cancers.)

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.)

The evidence

3.1 The PDG highlighted the need for greater consistency in reported outcome measures and the time points at which they are recorded, to allow for better comparison of the effectiveness and cost effectiveness of interventions.

3.2 In many studies, there was a lack of detail on the content of the intervention. This made it difficult to compare different approaches or methods and to determine which elements of

'multi-component' interventions contribute to overall effectiveness.

3.3 Review 1 included studies from the UK, Western Europe, North America, Australia and New Zealand, as the potential applicability of the findings to the UK was considered to be high. The UK evidence included some lower quality, relatively small, uncontrolled studies. However, such studies were valuable in indicating a general 'direction of travel' in terms of the effectiveness of interventions.

3.4 Limited data were available for children and young people of specific ages. No studies were found where children under the age of 6 were specifically targeted. Although several programmes had a lower age limit (of between 3 and 5 years), none of the studies provided data separately for this age group. Most programmes aimed at very young children appeared to be aimed at all children, rather than those who were overweight or obese. Study participants were predominantly female. Only 2 studies included more boys than girls and, in most cases, there were at least 20% more girls than boys. However, the PDG noted from expert testimony and experience that, in the 'real world', there tended to be a more even mix of boys and girls among programme participants. Nevertheless, the importance of identifying barriers to involving more boys in intervention studies was noted.

3.5 There was limited and contradictory data on the impact of lifestyle weight management programmes according to socioeconomic group. In most studies, children and young people were from middle-income families. In the 2 UK studies that did have significant numbers from low-income families, no association was found between outcomes and socioeconomic

group. However, a US study found that participation led to greater reductions in BMI z scores among those from higher income families.

3.6 Review 1 considered the reported follow-up data of participants in the included studies. It did not consider any secondary prevention or weight maintenance programmes for children or young people who have previously been obese or overweight. There is also a lack of information on the views of those who do not take part or who drop out early from a lifestyle weight management programme. This is an important omission, because there is an association between BMI adjusted for age and gender (BMI z score) at baseline and drop-out rates. It is possible therefore, that the views of children and young people with higher BMI scores may not have been fully captured by review 2. In addition, review 2 focused on the views of children, young people and their families about weight management programmes. It did not capture their views or experiences of the referral process.

Family-based approach

3.7 There is strong evidence from review 1 to suggest that targeting both parents and children, or whole families, is effective in reducing BMI z scores by the end the programme. In addition, the evidence on interventions involving families showed no negative effects on wellbeing and, in some cases, showed positive effects.

3.8 A report commissioned for the PDG identified that it is more common for adolescents to attend programmes either alone, or for parental attendance to be optional. That is despite the fact that the evidence shows that parental or family involvement is

considered a factor contributing to success in weight management. The recommendations for a whole-family approach therefore apply to older children and adolescents. However, the PDG acknowledged that, as they become more independent, some older children may prefer to attend separate sessions to their parents or carers and that flexibility is important.

3.9 Many overweight and obese children and young people may have, or come from a family with, a history of failed attempts to manage their weight. The Group noted the importance of exploring this shared history, along with family attitudes towards diet, physical activity and the amount of time spent being sedentary.

3.10 Efforts to manage a child or young person's weight are not always supported, and are sometimes undermined, by members of the wider family. This is possibly due to a lack of understanding of the aims of weight management programmes. With this in mind, the PDG noted the importance of gaining the wider family's understanding and support and has made a recommendation to this effect.

Tailoring programmes for ages and stages

3.11 Due to a dearth of evidence on effectiveness and cost effectiveness in relation to specific age groups, the PDG has been unable to make age-specific recommendations. The Group does, however, stress the importance of tailoring programmes according to age and stage of development.

3.12 The key aims of the Healthy child programme: Pregnancy and the first five years of life include early recognition of risk factors for obesity, prevention and early intervention. The

Programme's approach is consistent with the recommendations made in this guidance. For example, it recommends working in partnership with the family, setting achievable goals and exploring earlier life experiences in relation to obesity. The PDG recognised the important contribution that staff delivering the Healthy child programme could make in raising awareness of, and formally referring children and their families to, lifestyle weight management programmes. It also recognised their potential role in providing ongoing support.

Encouraging adherence to programmes

3.13 The PDG noted that weight management programmes were often 'bought in' by commissioners and were rarely tailored to meet local needs. As a result, the recommendations highlight the importance of assessing local needs and ensuring services are tailored to address those needs.

3.14 The PDG was particularly concerned to address issues which may prevent potential participants from taking part in and adhering to a lifestyle weight management programme. These include factors such as the location and type of venue in which programmes are delivered and recognising that people have other family commitments. The PDG highlighted the importance of addressing these very practical issues.

3.15 The PDG debated whether lifestyle weight management services should be offered to groups or to individual families on a one-to-one basis. Evidence shows that both approaches are effective in reducing BMI adjusted for age and gender (BMI z scores). The PDG noted from expert testimony that group sessions can provide good opportunities for the development of self-efficacy. This is because they provide opportunities to see

how others with similar goals have succeeded. They also provide peer support to build the child or young person's self-belief that they, too, can succeed. The PDG also acknowledged that individual sessions were likely to be more resource-intensive. However the Group was aware that some children and young people may not feel able to discuss or address their weight in a group setting. For this reason, the PDG recommended both approaches.

Behaviour-change techniques

3.16 The PDG heard from expert testimony that behavioural therapy techniques are effective in lifestyle weight management programmes for children and young people and are widely used. (This includes self-monitoring, stimulus control and goal-setting.) A 'package' of these techniques is usually included in the programme, as it is not known how much each element contributes to effectiveness. The PDG has, therefore, made a recommendation for more research in this area.

3.17 The PDG heard that aspects of cognitive behavioural therapy are used by some lifestyle weight management programmes, usually with older children or adolescents. This therapy focuses on understanding unhelpful or inaccurate thought processes, then changing behaviour to encourage new ways of thinking. It is usually delivered by staff who have received specialist training. Current evidence does not allow conclusions to be drawn on its effectiveness, however, and the PDG has made a research recommendation in this area.

Referring on to specialist services

3.18 The PDG heard from expert testimony that overweight and obese children are often victimised and that this can lead to

depression. The Group also heard that emotional and behavioural problems and impaired quality of life have been observed in obese pre-school children. In addition, the Group was told that behaviours such as binge eating are more likely in obese adolescents, than in adolescents of a healthy weight. Treatment of these conditions was beyond the scope of this guidance. However, the PDG noted the importance of ensuring any such potential issues are identified and that the child or young person is referred on for specialist support where necessary.

Increasing the uptake of programmes

3.19 Review 2 identified a lack of awareness of the availability of lifestyle weight management programmes among health professionals. In addition, the former Childhood Obesity National Support Team found that programmes frequently ran below capacity. The PDG was, therefore, aware of the need to increase both self-referrals and referrals by health professionals – including the need to agree clear referral pathways.

3.20 The PDG identified a wide range of ‘actors’ who could raise awareness of lifestyle weight management programmes. In particular, the PDG noted that staff conducting the National Child Measurement Programme were in an ideal position to direct parents and carers, where necessary, to these programmes for advice and support.

Training

3.21 Review 2 and the former National Support Team for Childhood Obesity findings both highlighted the need to train lifestyle weight management programme staff and health professionals

referring people to the programmes. In addition, the PDG noted that staff who were themselves overweight or obese may lack the confidence to raise the issue of weight management with potential participants.

Sustaining behaviour changes

3.22 A meta-analysis conducted for review 1 showed that programmes lasting between 8 and 24 months improved outcomes for BMI, adjusted for age and gender (BMI z scores). However, once the programme was completed, the effect disappeared over time and was non-significant at 6 months post-programme. The PDG therefore acknowledged the importance of providing ongoing support and follow-up once programmes are completed.

3.23 The PDG noted the importance of having a supportive environment to help sustain behaviour change after completing a lifestyle weight management programme. Although this was beyond the scope of the guidance, a number of pieces of NICE guidance have made recommendations in this area, see Related guidance.

3.24 The PDG noted that many lifestyle weight management services for children and young people were often commissioned in isolation and in response to a short-term funding opportunity. The Group highlighted the importance of commissioning these services as part of a wider, more sustainable approach to preventing and treating obesity. This approach is reflected in this guidance. It is also addressed in detail by NICE public health guidance on obesity: working with local communities.

Monitoring, evaluation and setting outcome measures

3.25 The PDG noted there had been little robust monitoring and evaluation of lifestyle weight management programmes. The Group also noted that new local authority responsibilities for public health may be an opportunity to embed monitoring requirements into service specifications and contracts. Periodic evaluations into planning and commissioning strategies may also be possible.

3.26 The PDG debated at length the choice of suitable outcome measures for lifestyle weight management programmes for children and young people. The Group agreed that the primary goal, in the longer term, is to reduce BMI for age and gender (BMI z scores). However, it was aware that, in practice, most programmes only run for around 8 to 12 weeks and that it would be unrealistic to expect significant reductions in that time. A report commissioned for the PDG identified unrealistic outcome measures as a barrier to providers working effectively with commissioners. Nevertheless, the PDG was aware that a reduction in BMI for age and gender is sometimes used by commissioners as a key performance indicator. Financial penalties may, in some cases, be attached to failure to achieve this outcome.

3.27 The PDG recognised that maintaining weight (and preventing further weight gain) is the short-term aim of many lifestyle weight management programmes for children and young people. The rationale is that, as the child grows in height over time, if they maintain their weight, their BMI z score will be reduced. The PDG considered this a realistic outcome for programmes in the short term. The Group also felt it was very important to sustain the halt in weight gain beyond the duration

of the programme itself. For these reasons the PDG has made recommendations which place the emphasis on sustaining change over the longer term.

3.28 The PDG recognised the importance of retaining participants within the programme. This is based on evidence that the greater the proportion of total programme sessions a child or young person attends, the more likely they are to succeed. This is reflected in the recommendations on outcome measures, encouraging adherence to the programme, maintaining contact and providing ongoing support to former participants.

Economic considerations

3.29 The economic model defines a child or young person whose BMI lies between the 85th and 95th centiles of the 1990 UK centile chart as overweight. A child or young person whose BMI lies between the 95th and the 99.5th centile is defined as obese. Children and young people above the 99.5th centile are described as morbidly obese.

3.30 The economic model estimated that interventions costing £100 per person would usually be cost effective. This would be the case if an overweight or obese child could be prevented from gaining as little as 0.5% (on average) of their body weight, and the difference was maintained throughout life. Interventions that permanently prevent an average 3% weight gain would also be cost effective, provided that the average cost is less than £1000 per child.

3.31 The cost effectiveness of interventions for children who are morbidly obese was unclear. Two scenarios were modelled. In scenario 1, a small reduction in BMI for morbidly obese children leads to very small health benefits later in life. In this case, it is

estimated that the intervention would not be cost effective. In scenario 2, small reductions in BMI for morbidly obese children lead to similar health benefits in later life as for overweight or obese children. In this case, it is estimated that the intervention would be cost effective. The PDG concluded that interventions for children who are morbidly obese would need to lower BMI considerably, to be more certain that the intervention was worth undertaking.

3.32 There was little evidence about the long-term effects of an intervention to prevent or reduce obesity in childhood. For example, the model looked at an intervention for overweight boys or girls aged from 12 to 17. To be cost effective, it found that their average weight trajectory must lie below what it would have been without the intervention, for at least 10 years.

3.33 Increasing the cost per child enrolled in a lifestyle weight management programme, from the £100 assumed in the model up to £2000, made little difference to its value for money. If each participant's average weight was reduced by 0.5% – and the change is maintained for life – the model estimates that interventions costing up to £2000 per child will be cost effective

3.34 The PDG noted a negative association between a child's BMI and their self-esteem, and a positive association with bullying. However, the evidence is mixed (and is particularly weak for younger children). In addition, even if the associations were well-defined and quantified, it is not clear how effective interventions aimed at remedying the situation might be.

This section will be completed in the final document.

4 Recommendations for research

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

Recommendation 1 Research studies and trials

Who should take action?

Research councils, commissioners and funders.

What action should they take?

Research studies and trials of lifestyle weight management programmes for children and young people who are obese or overweight should:

- Standardise outcome measures to assess effectiveness. Outcomes should be reported on an 'intention to treat' basis (as opposed to reporting outcomes for programme completers only). They should include:
    - maintenance of, or changes in, BMI z score, as the primary outcome measure to allow a child to 'grow into their weight'
    - factors which affect weight (match these to the intervention objectives), for example, measures of self-efficacy, changes in diet, physical activity and time spent being sedentary and measures of wellbeing.
- Standardise the time points when outcome measures are reported and followed up. They should include, as a minimum: at baseline and post-intervention, at 6 months, 1 year and up to 2 years from baseline.
- Report in detail the components of the intervention. This should include: what is done, to whom, by who, in which setting, and when and how?

- Include an appropriate comparator group and report the components above. Where a randomised controlled trial is not possible, alternative research designs should be considered.

- Report attrition (drop-out) rates, follow up non-completers and investigate the causes of attrition. In addition, they should investigate the causes of low uptake and how these might be addressed.

- Be sufficiently powered to detect effects.

- Use only standardised validated tools (appropriate for the study sample) to collect data, for example, a validated food frequency questionnaire to investigate dietary intake. Where validated tools for secondary measures do not exist, a tool to measure the outcome (for example, physical activity) should be developed as part of the study.

- Include the collection and analysis of qualitative data to allow a process evaluation of the intervention. These data should include the referral process and experiences of both programme staff and participants.

- Include the collection of cost data to allow cost effectiveness to be evaluated.

Recommendation 2 Longer-term programme evaluation

Who should take action?

Research councils, commissioners and funders.

What action should they take?

Consider funding longer term research studies and trials of lifestyle weight management programmes for children and young people who are obese or overweight. Ideally studies should last from 5 to10 years.

Recommendation 3 Barriers and facilitators

Who should take action?

- Research councils, commissioners and funders.
- Researchers and investigators.

What action should they take?

- Determine any variation in the barriers to and facilitators for participating in lifestyle weight management services for overweight and obese children and young people and their families. Include:
  - Ethnicity and cultural aspects
  - socioeconomic group
  - gender (boys in particular)
  - age.
- Ask parents, carers and families of children aged under 6 what factors encourage or discourage overweight and obese children to participate (or not) in lifestyle weight management programmes. Determine how these might be addressed.
- Investigate the barriers to, and facilitators for, implementing lifestyle weight management services for overweight and obese children and young people with special needs. Determine how these might be addressed.

Recommendation 4 Weight management programmes

Who should take action?

- Research councils, commissioners and funders.
- Researchers and investigators.

What action should they take?

- Consider which components of multi-component interventions determine effectiveness.
- Consider which components of the behavioural therapy ‘packages’ used determine effectiveness.
- Investigate the effectiveness and cost effectiveness of cognitive behavioural therapies when used for these programmes. Determine the training needs of staff who deliver such therapies.
- Determine the long-term effectiveness of programmes. Do children who have lost or maintained their weight in a lifestyle weight management programme maintain this in the long term and, if so, for how long?
- Examine how best to communicate the findings of the National Child Measurement Programme (NCMP) to parents and carers to ensure they take action, as required, without causing distress.
- Investigate how to encourage parents and carers to take responsibility for their child’s weight management. This includes how best to help parents, carers and families recognise when children and young people are overweight or obese and how to encourage parents to participate in programmes.
- Investigate what impact parents and carers have on the outcomes of programmes.
- Examine who is best placed to deliver lifestyle weight management programmes (including lay people) for children and young people and what their training needs are.

- Investigate effective and appropriate ways of getting children and young people involved in lifestyle weight management programmes. This might include use of new technology such as texting or phone apps.

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

5 Related NICE guidance

Published

Obesity: working with local communities. NICE public health guidance 42 (2012)

Prevention of cardiovascular disease. NICE public health guidance 25 (2010)

Weight management before, during and after pregnancy. NICE public health guidance 27 (2010)

Promoting physical activity for children and young people. NICE public health guidance 17 (2009)

Maternal and child nutrition. NICE public health guidance 11 (2008)

Physical activity and the environment. NICE public health guidance 8 (2008)

Behaviour change. NICE public health guidance 6 (2007)

Obesity. NICE clinical guideline 43 (2006)

Under development

Overweight and obese adults: lifestyle weight management services. NICE public health guidance (publication expected May 2014).

6 Glossary

Behaviour- change techniques

Techniques aimed at changing the way someone acts (and so, logically, their thinking patterns). In this case, the changes relate to dietary intake and eating behaviour, physical activity and sedentary behaviour.

BMI z score

A BMI z score is a measure of how many standard deviations a child or young person's BMI is above or below the average BMI for their age and gender (based on a reference population known as a child growth reference). For instance, a z score of 1.5 indicates that a child is 1.5 standard deviations above the average value, and a z score of -1.5 indicates a child is 1.5 standard deviations below the average value. Care is required when interpreting BMI z scores using the UK 1990 BMI growth reference charts for black, Asian and other minority ethnic groups. The advantage of using BMI z scores instead of BMI is that it allows direct comparison of BMI and any changes in BMI across different ages and by gender. This term is sometimes used interchangeably with BMI Standard Deviation Score (BMI SDS). See A simple guide to classifying BMI in children.

Body mass index (BMI)

Body mass index is defined as a person's weight divided by the square of their height and reported in units of kg/m^2. Specific cut-off points are used to assess whether a person is a healthy weight, underweight, overweight or obese. For children and young people these are related to age and gender.

Child and adolescent mental health services (CAMHS)

Specialist mental health services for children and young people.

Evaluation

Periodic indepth assessment of the weight management service as a whole, including effectiveness, in terms of BMI outcomes and benefits and value-for-money.

Meta-analysis

Results from a collection of independent studies investigating the same treatment are pooled. Statistical techniques are then used to synthesise the findings into a single estimate of how well an intervention will work.

Monitoring

Routine collection, analysis and reporting of a set of data to assess the performance of a weight management programme according to the service specification and intended health outcomes.

National Child Measurement Programme

The National Child Measurement Programme (NCMP) measures the weight and height of children in reception class (aged 4 to 5 years) and Year 6 (aged 10 to 11 years). The aim is to assess the prevalence of children who are of primary school age and are obese or overweight, by local authority area. These data can be used at a national level to support local public health initiatives and inform local services for children.

Physical activity

Physical activity comes in many forms. This includes everyday activities such as walking or cycling to get from A to B, active play, work-related activity, active recreation (such as working out in a gym), dancing, gardening or playing active games, as well as organised and competitive sport.

Positive parenting skills training

Training for parents and carers which aims to improve children and young peoples' behaviour. It fosters effective boundary setting and the need to

reward and praise children in a way that promotes positive relationships and self-esteem.

Providers of lifestyle weight management programmes

Organisations from the private, public, or voluntary sector offering lifestyle weight management services in the community or in (or via) primary care settings.

Psychosocial considerations

Psychosocial considerations refers to the often complex interaction between the mind, body and social environment.

Rolling programmes

Programmes which run on a continuous basis with no fixed start or end point and which participants can join or leave at any point.

Sedentary behaviour

Activities that do not increase energy expenditure much above resting levels. Sedentary activities include sitting, laying down and sleeping. Associated activities, such as watching television and reading, are also sedentary.

Self-efficacy

Someone’s belief in their ability to think, feel and behave in a way that’s necessary to achieve a particular outcome.

Stimulus control

Stimulus control relates to the way someone’s behaviour changes due to a particular trigger. For example, having the television on can encourage someone to sit and watch it (that is, adopt sedentary behaviour).Turning the TV off could encourage them to do something that is more physically active. Another trigger may include snacks. If the person trying to manage their weight finds it hard to resist high fat or sugary snacks, then it would be best if

they are not brought into the house. (Or family members could be asked not to eat those snacks around that person.)

Tier 3 obesity management services

Specialised services, usually hospital-based, to treat obesity.

UK 1990 BMI growth reference charts

Charts used for children aged 4 years and over to determine if their BMI is appropriate for their age and gender. See NOO - A simple guide to classifying BMI in children.

WHO growth standards for children aged under 4

These standards were developed using data collected in the WHO Multicentre Growth Reference Study. Its website describes how the physical growth curves and motor milestone windows of achievement were developed, as well as application tools to support implementation of the standards.

7 References

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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 comments used to revise the scope

3. Final scope and responses to comments published on website

4. Evidence reviews and economic modelling undertaken and submitted to PDG

5. PDG produces draft recommendations

6. Draft guidance (and evidence) released for consultation

7. PDG amends recommendations

8. Final guidance published on website

9. Responses to comments published on website

Key questions

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

How effective and cost effective are lifestyle weight management programmes in helping overweight or obese children and young people to achieve and maintain a healthy weight?

What are the essential components of an effective and cost-effective weight management programme for overweight and obese children and young people?

The subsidiary questions were:

1. How does effectiveness and cost effectiveness vary for different population groups? (Examples may include children and young people from different black and minority ethnic groups, from low-income groups, of different ages or genders, or with special needs.)

2. What are the most effective and cost effective ways of addressing and sustaining behavioural change among overweight and obese children and young people using community-based weight management programmes?

3. How does the inclusion of parents, carers and the wider family impact on the effectiveness of community-based weight management programmes for children and young people?

4. What barriers and facilitators affect the delivery of effective weight management programmes for children and young people and how do they vary for different population groups?

5. What are the views, perceptions and beliefs of the children, young people and their families who use weight management services?

6. What are the views, perceptions and beliefs of the staff responsible for commissioning and delivering weight management services to children and young people?

7. How can more overweight and obese children and young people be encouraged to join, and adhere to, lifestyle weight management programmes?

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

Reviewing the evidence

Effectiveness reviews

One review of effectiveness and cost effectiveness was conducted (Review 1).

Identifying the evidence

A number of databases were searched in May 2012 for relevant studies published in English from January 2000. See the review for details of the databases searched.

In addition, randomised controlled trials (RCTs), economic evaluations and views studies published between 1990 and 1999 were identified and included

using ‘snowballing’ methods. (Systematic reviews, reference list checking and citation tracking were ‘unpicked’ from the Scopus and Science Citation Index databases.)

NICE also issued a call for evidence from registered stakeholders in May 2012.

Selection criteria

Studies were included in the effectiveness and cost effectiveness review if they:

- covered children and young people aged below 18 years who were overweight or obese, or their parents, carers and families
- considered lifestyle weight management programmes for obese and overweight children and young people that focus on diet, physical activity or behaviour change, or any combination of these factors
- measured changes in weight, diet, physical activity, wellbeing or satisfaction with the service
- were carried out in the UK (any study design)
- were RCTs and quasi-RCTs (randomisation method unclear) of 100 or more participants from Australia, Canada, New Zealand, the US and other western European countries
- reported health economic outcomes.

Studies were excluded if they:

- focused on young women under 18 who were pregnant
- were RCTs involving a population of less than 40
- focused on clinical treatment of obesity.

Details can be found at ‘Effectiveness and cost effectiveness of lifestyle weight management services for children and young people’

Other reviews

One review of barriers and facilitators to implementing lifestyle weight management programmes for children and young people was conducted (review 2).

Identifying the evidence

The same databases and websites were searched as for review 1 (see above).

Selection criteria

Studies were included in the review if they:

- considered lifestyle weight management programmes for obese and overweight children and young people that focused on diet, physical activity or behaviour change, or any combination of these factors
- were qualitative, survey and other observational studies of the barriers and facilitators to delivering such interventions or the views, perceptions and beliefs of those using and delivering them
- were conducted in Australia, Canada, New Zealand, the US or western Europe

Studies were excluded if they:

- focused on young women under 18 who were pregnant
- focused on clinical treatment of obesity
- reported intrapersonal barriers and facilitators to losing or managing weight not associated with the participation in, or delivery of, weight management programmes
- were quantitative studies that did not measure attitudes (for example, correlation studies).

Details can be found at 'The barriers and facilitators to implementing lifestyle weight management programmes for children and young people'

Quality appraisal

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

Study quality

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

+ Some of the checklist criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are unlikely to alter the conclusions.

– Few or no checklist criteria have been fulfilled. The conclusions of the study are likely or very likely to alter.

The evidence was also assessed for its applicability to the areas (populations, settings, interventions) covered by the scope of the guidance. Each evidence statement concludes with a statement of applicability (directly applicable, partially applicable, not applicable).

Summarising the evidence and making evidence statements

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

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

Commissioned report

A short report was commissioned on practical and process issues related to the provision of lifestyle weight management services for children and young people. It synthesised responses to a questionnaire submitted by service providers.

Details can be found at 'Practical and process issues in the provision of lifestyle weight management services for children and young people'.

Cost effectiveness

The existing cost effectiveness evidence was reviewed as part of review 1.

In addition, an economic model was constructed. The results are reported in: 'Managing overweight and obesity among children: Report on Economic Modelling and Cost Consequence Analysis'. This was produced by M Brown, T Marsh, K Rtveladze (all from the National Heart Forum) and R Fordham, M Suhrcke, D Turner, R Little and O Filani (all from the University of East Anglia).

How the PDG formulated the recommendations

At its meetings in July 2012, October 2012, December 2012, January 2013 and February 2013, the Programme Development Group (PDG) considered the evidence, expert reports and cost effectiveness to determine:

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

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

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

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 6 expert papers and 1 report commissioned by the Programme Development Group (PDG) 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. 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 1.2.3 indicates that the linked statement is numbered **2.3 in review 1**. **Evidence statement number 2.1.1** indicates that the linked statement is numbered **1.1. in review 2**. **EP1** indicates that expert paper 1 is linked to a recommendation and **CR1** indicates that the commissioned report is linked to a recommendation.

The reviews, expert reports, commissioned report and economic analysis are available at the NICE website. 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: evidence statements 1.1.10, 1.1.16, 1.1.33, 1.1.34, 1.1.35, 1.1.36, 1.2.3; EP1

Recommendation 2: evidence statements 2.1.40, 2.1.41, 2.1.42; EP1, EP2, EP4, CR1; IDE.

Recommendation 3: evidence statements 1.1.10, 1.1.16, 1.1.33, 1.1.34, 1.2.2, 1.2.3, 1.4.1, 1.4.2, 2.1.13, 2.1.14, 2.1.15, 2.1.16, 2.1.17, 2.1.23, 2.1.25, 2.1.26, 2.1.27, 2.1.32, 2.1.33, 2.1.34; EP3, EP5, EP6

Recommendation 4: evidence statements 1.1.14, 1.2.3, 1.4.1, 1.4.2, 2.1.5, 2.1.13, 2.1.15, 2.1.25, 2.1.26, 2.1.27, 2.1.31, 2.1.33, 2.2.4, 2.2.5; EP3, EP6; IDE

Recommendation 5: evidence statements 1.1.10, 1.1.16, 1.2.3, 2.1.12, 2.1.13, 2.1.15, 2.1.22, 2.1.23, 2.1.24, 2.1.28, 2.1.29, 2.1.30, 2.1.38, 2.1.39, 2.2.4, 2.2.5; EP5, CR1

Recommendation 6: evidence statements 2.1.11, 2.1.18, 2.1.19, 2.1.20, 2.1.32; EP1, CR1; IDE

Recommendation 7: evidence statements 2.1.18, 2.1.19; EP1; IDE

Recommendation 8: evidence statements 2.1.18, 2.1.20; EP1; IDE

Recommendation 9: evidence statements 1.2.7, 2.1.4, 2.1.7, 2.1.8, 2.1.9, 2.1.10, 2.1.11, 2.1.14, 2.1.16, 2.1.19; EP1, EP3, CR1; IDE

Recommendation 10: evidence statements 1.1.33, 1.1.34, 1.4.1, 1.4.2, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.34; EP3, CR1; IDE

Recommendation 11: evidence statements 1.1.33, 1.1.34, 1.4.1, 1.4.2, 2.1.34, 2.1.35, 2.1.36, 2.1.37; CR1; IDE

Recommendation 12: evidence statements 2.1.11, 2.1.38, 2.1.39, 2.1.41, 2.1.42; EP1, EP5, CR1; IDE

Recommendation 13: evidence statements 2.1.38, 2.1.39, 2.1.41, 2.1.42; EP1, EP3, EP5, EP6, CR1; IDE

Recommendation 14: evidence statements 1.2.4, 2.1.19; EP1; IDE

Recommendation 15: EP1; IDE

Recommendation 16: evidence statements 1.4.1, 1.4.2; EP1, EP4, EP5 CR1; IDE

Evidence statements

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

Evidence statement 1.1.10 Child and parent/carer interventions – anthropometric outcomes

There is strong evidence from 8 studies (3 [++] randomised controlled trials [RCTs][1-3], 2 [+] RCTs[4,5], 2 [−] quasi-RCTs[6,7] and 1 [−] uncontrolled before-after [UBA] study[8]) that child/adolescent and parent interventions result in significant decreases in BMI z-score based on baseline to follow-up within group measures. This evidence is directly applicable as the studies were carried out in community settings in the USA[1,4-7], Australia[2,3] and the UK[8].

[1] DeBar 2012

[2] Collins 2011

[3] Shrewsbury 2009

[4] Savoye 2009

[5] Jelalian 2010

[6] Resnicow 2005

[7] Goldfield 2001

[8] Rudolf 2006.

Evidence statement 1.1.14 Child and parent/carer interventions – wellbeing outcomes

There is strong evidence from 2 (++) RCTs[1,2] that group-based behaviour-change interventions directed at children[2]/adolescents[1] and parents have significant beneficial effects on some psychosocial outcomes. One (++) RCT[1] showed a group difference at 18 months for body satisfaction (p=0.026) and appearance (p=0.019) although no group differences on other psychosocial

outcomes. A second (++) RCT [2] showed group difference at 12 months for scholastic competence (p=0.049), but not other psychosocial outcomes. 208 overweight adolescent females aged 12–17 received a 5-month intervention delivered by nutritionists, health educators and clinical psychologists[1]. Dietitians delivered a 2-year intervention to 151 overweight and obese adolescents (52% female)[2]. This evidence is directly applicable as studies were conducted in community settings respectively in the USA, Australia and the UK.

[1] DeBar 2012

[2] Shrewsbury 2009.

Evidence statement 1.1.16 Family interventions – anthropometric outcomes

There is strong evidence from 18 papers on 17 studies (5 [++] RCTs[1–5], 4 [+] RCTs[6–9], 1 [+] quasi-RCT[10], 1 [–] quasi-RCT[11] and 6 [−] UBAs[12–17]) that, for overweight and obese children and adolescents, whole **family** interventions whether directed at individual families[1,4,6–9,16] or group-based[2,3,5,9–14,16–18] result in significant decreases in **BMI z-score** based on baseline to follow-up for **within group measures**. All but 1 –UBA[12] (which focused on diet and physical activity) and 1 quasi-RCT (behaviour change only) assesses the effectiveness of multi-component interventions focusing on behaviour change. This evidence is applicable as all studies are community-based, 1 of which was conducted in the UK[1,6,7,9,10,12–17], 3 in the USA[2,3,11], 2 in Australia[4,6] and 1 in Italy[8].

[1] Ford 2010

[2] Kalarchian 2009

[3] Kalavainen 2007

[4] McCallum 2007

[5] Wake 2009

[6] Croker 2012

[7] Hughes 2008

[8] Nova 2001

[9] Sacher 2010

[10] Coppins 2011

[11] Berkowitz 2011

[12] Norton 2011

[13] Pittson 2011

[4] Rennie 2010

[15] Robertson 2011

[16] Sabin 2007

[17] Watson 2009

[18] Watson 2011.

Evidence statement 1.1.33 Meta-analyses: child and parent or whole family interventions – anthropometric outcomes

A meta-analysis of 8 RCTs (4 [++] RCTs[1–4], 3 [+] RCTs[5–7] and 1 [−] quasi-RCT[8]) estimated the overall effectiveness of interventions directed at children and parents/carers or whole family versus no or minimal control outcomes immediately post intervention as a significant reduction in BMI SMD of –0.22 (–0.33 to –0.10). This evidence is directly applicable as the studies were conducted in the UK and other similar community-based settings.

[1] DeBar 2012

[2] Kalarchian 2009

[3] Okely 2010)

[4] Ford 2010

[5] Jelalian 2010

[6]Croker 2012

[7] Savoye 2009

[8] Resnicow 2005.

Evidence statement 1.1.34 Meta-analyses: child and parent or whole family interventions – anthropometric outcomes

A meta-analysis of 11 RCTs (7 [++] RCTs[1–7]; 3 [+] RCTs[8–10] and 1 [−] quasi-RCT[11]) estimated the overall effectiveness of interventions directed at children and parents/carers or whole family versus no or minimal control outcomes at longer-term follow up (≥6 months) as a non-significant reduction in BMI SMD of –0.01 (–0.11 to 0.08). This evidence is directly applicable as the studies were conducted in the UK or other similar community-based settings.

[1] Collins 2011

[2]DeBar 2012

[3] Golley 2007

[4] Kalarchian 2009

[5] McCallum 2007

[6] Nguyen 2012

[7] Wake 2009

[8] Jelalian 2010

[9] Nova 2001

[10] Savoye 2009

[11] Resnicow 2005.

Evidence statement 1.1.35 Cost effectiveness

Evidence from 7 short-term health economic analyses[1–7] suggests that lifestyle weight management programmes will result in an increased cost to the NHS in terms of BMI z-score gains when compared to routine care in the short term. However, overall small (and in some cases non-significant)

improvements in BMI z-scores can be achieved. All studies were applicable in terms of setting and participants, but data from short-term studies is limited in its applicability to life-time cost estimates and assessed as partially applicable[3,4,6,7]. Some studies provided cost data only and there was no assessment of their applicability or study limitations[1,2,5].

[1] Coppins 2011

[2] Hughes 2008

[3] Janicke 2009

[4] Kalavainen 2009

[5] Robertson 2011

[6] Wake 2008

[7] Wake 2009.

Evidence statement 1.1.36 cost effectiveness

Three extrapolation models of programmes[1–3] suggest interventions that lead to even small reductions in BMI can be cost effective in the long term at conventional cost-effectiveness thresholds, provided the short-term effects on BMI, observed in trials, are sustained into adulthood. The evidence from these studies is directly applicable but there are potentially serious limitations to the studies.

[1] YHEC 2010

[2] Moodie 2008

[3] Hollingworth 2012

Evidence statement 1.2.2 Parenting skills.

There is strong evidence from 2 (++) RCTs[1,2] that interventions involving group-based parenting skills training directed to the parents of overweight and obese children aged respectively 6–9 and 5–9 years are effective in improving BMI. However, the addition of intensive lifestyle education did not

lead to significantly greater improvements in BMI z-scores, food intake or physical activity measures[1] or that the addition of parenting skills training to intensive lifestyle education alone was more beneficial to BMI z-scores or parenting outcomes[2]. Both interventions were delivered over 6 months by dietitians. This evidence is directly applicable as the studies were conducted in community settings in Australia[1,2].

[1] Golley 2007

[2] Magarey 2011.

Evidence statement 1.2.3 Involvement of family

There is strong evidence, post intervention, to suggest that targeting both parents and children (8 studies: 3 [++] RCTs[1–3], 2 [+] RCTs[4,5], 2 [–] quasi-RCTs[6,7], and 1 [–] UBA[8]) or whole families (18 papers from 17 studies: 5 [++] RCTs[9–13], 4 [+] RCTs[14–17], 1 [+] quasi-RCT[18], 1 [–] quasi-RCT[19] and 6 [−] UBAs[20–26]) is effective in reducing within group BMI z scores. For those studies with follow up of 6 months or more there were no clear differences. Evidence from child-only interventions (1 [++] RCT[27], 1 [+] RCT[28] and 1 [−] CBA[29]) and parent-only interventions (2 [++] RCTs[30,31], 2 [+] RCTs[32,33] and 1 [–] cluster RCT[34]) are limited and inconsistent.

[1] DeBar 2012

[2] Collins 2011

[3] Shrewsbury 2009

[4] Savoye 2009

[5] Jelalian 2010

[6] Resnicow 2005

[7] Goldfield 2001

[8] Rudolf 2006

[9] Ford 2010

[10] Kalarchian 2009

[11] Kalavainen 2007

[12] McCallum 2007

[13] Wake 2009

[14] Croker 2012

[15] Hughes 2008

[16] Nova 2001

[17] Sacher 2010

[18] Coppins 2011

[19] Berkowitz 2011

[20] Norton 2011

[21] Pittson 2011

[22] Rennie 2010

[23] Robertson 2011

[24] Sabin 2007

[25] Watson 2009

[26] Watson 2011

[27] Daley 2006

[28] Petty 2009

[29] Gately 2005

[30] Golley 2007

[31]Magarey 2011

[32] Janicke 2009

[33] Estabrooks 2009

[34] West 2010

Evidence statement 1.2.4 Referral method

There is strong evidence from a meta-analysis of 12 studies[1–12], of which 2 studies examined specialist referral[2,10], to suggest that interventions which involve specialist medical referral to a programme compared to self, GP, school or a mixture of referral methods show greater improvements in BMI z-scores at end of intervention (SMD = -0.41; CI 95% = -0.64 to -0.17). The studies in the meta-analysis were conducted in applicable community settings.

[1] DeBar 2012

[2] Ford 2010

[3] Kalarchian 2009

[4] Magrey 2011

[5] Okely 2010

[6] Croker 2012

[7] Daley 2006

[8] Jelalian 2010

[9] Sacher 2010

[10] Savoye 2009

[11] West 2010

[12] Resnicow 2005.

Evidence statement 1.2.7 Intensity of intervention

There is moderate evidence from 1 (–) RCT[1] and 1 (++) RCT[2] that children who attend 75% or more of the high intensity programme sessions offered, showed greater improvements in weight outcomes than those attending fewer sessions. One further ongoing (++) RCT[3] found that following up CBT therapy with telephone/SMs coaching was not more beneficial to BMI z-scores, diet, physical activity and psychosocial outcomes than CBT alone. The studies in

both meta-analysis were conducted in community settings in the USA and Australia.

[1] Resnicow 2005

[2] Karlachian 2009

[3] Shrewsbury 2009.

Evidence statement 1.4.1 Most effective ways of sustaining long-term effects

There is inconsistent evidence as to whether the effects of weight management programmes are sustained long term. There is strong evidence from meta-analyses of 18 programmes (10 [++] RCTs[1–11] [11 papers], 5 [+] RCTs[12–16], 3 quasi-RCTs – 1 [+][17], 2 [–][18,19]) with BMI-z outcomes, indicating improvements decrease the longer the length of follow-up. The evidence is directly applicable as all studies were conducted in community settings in the UK or other similar countries and are directly applicable.

[1] Collins 2011

[2] Daley 2006

[3] DeBar 2012

[4] Ford 2010

[5] Golley 2007

[6] Karlachian 2009

[7] Magarey 2011

[8] McCallum 2007

[9] Nguyen 2012

[10] Okely 2010

[11] Wake 2009

[12] Croker 2012

[13] Estabrooks 2009

[14] Jelalian 2010

[15] Sacher 2010

[16] Savoye 2009

[17] Nova 2001

[18] Resnicow 2005

[19] West 2010.

Evidence statement 1.4.2 Most effective ways of sustaining long-term effects

Considering BMI plus other outcomes, there is inconsistent evidence from 5 (++) RCTs[1–5], 1 (+) RCT[6], 1 (+) quasi-RCT[7] and 1 [–] UBA[8] as to whether the effects of weight management programmes are sustained long term. It is not possible to determine which intervention components resulted in sustained outcomes. The evidence is directly applicable as all studies were conducted in community settings in the UK or other similar countries.

[1] Collins 2011

[2] DeBar 2012

[3] Kalavainen 2007

[4] Magarey 2011

[5] McCallum 2007

[6] Savoye 2009

[7] Coppins 2011

[8] Robertson 2011.

Evidence statement 2.1.1 Facilitator: weight management goals

There is evidence from 5 qualitative studies (4 [+][1–4] and 1 [–][5]) that the desire to lose weight or prevent further weight gain was a motivator for programme

users to join and continue attendance at lifestyle weight management programmes. In 8 studies, perceived improvements in children's and/or young people's weight management outcomes were described by programme providers (1 (+) qualitative study[6]) and programme users (1 [++] qualitative[7], 4 [+] qualitative[2,3,8,9,], and 2 process evaluations[10,11]). This evidence is directly applicable as the studies were conducted in community-based settings in the UK or other similar countries (USA) [8].

[1] Holt 2005

[2] Pescud 2010

[3] Stewart 2008

[4]Twiddy 2012

[5]Withnall 2008

[6] Jinks 2010

[7] Hester 2010

[8]Alm 2008

[9] Watson 2012a

[10]Pittson Unpublished

[11] Watson 2008.

Evidence statement 2.1.2 Facilitator: health improvement goals

Health improvement or prevention of future health problems were described as incentives to joining weight management programmes by children and families in 6 qualitative studies (2 [++][1,2], 3 [+][3-5] and 1 [–][6]). Providers in 1 (+) qualitative study[7] and programme users in 4 studies (3 process evaluations[8–10], 1 [+] qualitative study[11]) perceived health improvements as a consequence of attending weight management programmes. This evidence is directly applicable as studies were conducted in the UK in community-based settings.

[1] Morinder 2011

[2] Staniford 2011

[3] Alm 2008

[4] Holt 2005

[5] Watson 2012a

[6] Dixey 2006

[7] Jinks 2010

[8] Pittson 2011

[9] Pittson unpublished

[10] Watson 2008

[11] Stewart 2008.

Evidence statement 2.1.3 Facilitator: healthier lifestyle behaviour

Weight management programmes were perceived to improve children's lifestyle behaviours, such as healthier diet and increased physical activity, by programme providers in 2 process evaluations[1,2] and also by programme users in 5 studies (1 [++] qualitative[3], 2 [+] qualitative[4,5], 1 [–] qualitative[6] and 1 process evaluation[1]). Directly applicable as conducted in the UK in community-based settings.

[1] Watson 2008

[2] Watson 2012b

[3] Hester 2010

[4] Stewart 2008

[5] Watson 2012a

[6] CI Research 2009.

Evidence statement 2.1.4 Barrier: lack of programme impact on weight management

Concerns that programmes were not helping children achieve weight management goals were expressed by providers in 1 (–) qualitative study[1] and by parents in 1 (+) qualitative study[2]. In both studies the weight outcome was described in terms of weight loss, without reference to the wider aims of most weight management programmes to slow further weight gain so that BMI z-scores improve as children grow. Also, children in 1 (++) qualitative study[3] stated that weight gain prompted feelings of embarrassment and shame, and led to non-attendance at booked appointments. There were different views between studies and between the participants of the same studies as to whether weight was the most important outcome. Two (+) qualitative studies[4,5] suggested psychological wellbeing was of equal or greater importance to parents, whereas weight outcomes appeared more important to some children in 2 (+) qualitative studies[4,6] and to parents in 1 (–) qualitative study[1]. This evidence is directly applicable as the studies were conducted in community settings in the UK and Sweden[3].

[1] Dixey 2006

[2] Watson 2012a

[3] Morinder 2011

[4] Twiddy 2012

[5] Stewart 2008

[6] Murtagh 2006.

Evidence statement 2.1.5 Facilitator: psychological wellbeing and social outcomes

Improved psychological wellbeing such as confidence and self-esteem, or improved social outcomes such as reduced bullying and making friends were strong motivators for programme participation among children and their families in 10 studies (2 [++] qualitative[1,2], 6 [+] qualitative[3–8], and 2 [–]

qualitative[9,10]). Programmes were perceived to be successful in improving these outcomes in 12 studies (2 [++] qualitative[11,12], 4 [+] qualitative[3,6,7,13], 2 [–] qualitative [9,10], 4 process evaluations[14–17]). Two studies[6,7] suggested that improvements in these outcomes were sufficient to maintain engagement with programmes despite lack of weight management. This evidence is directly applicable as the studies were conducted in community settings in the UK or similar countries (the USA[3], Sweden[2], Australia[5]).

[1] Gellar 2012

[2] Morinder 2011

[3] Alm 2008

[4] Holt 2005

[5] Pescud 2010

[6] Stewart 2008

[7] Twiddy 2012

[8] Murtagh 2006

[9] Dixey 2006

[10] Withnall 2008

[11] Hester 2010

[12] Staniford 2011

[13] Watson 2012a

[14] Pittson unpublished

[15] Pittson 2011

[16] Robertson 2009

[17] Watson 2008.

Evidence statement 2.1.7 Facilitator: children's motivation to manage weight

High levels of children's motivation to manage weight was reported in 6 qualitative studies (3 [++][1–3], 2 [+][4,5] and 1 [–][6]) and helped promote participation in weight management programmes. This evidence is directly applicable as the studies were conducted in community settings in the UK or similar countries (the USA[1], Sweden[2]).

[1] Gellar 2012

[2] Morinder 2011

[3] Owen 2009

[4] Jinks 2010

[5] Twiddy 2012

[6] Dixey 2006.

Evidence statement 2.1.8 Facilitator: awareness and acceptance of children being overweight or obese

Children, their families and providers emphasised that awareness and acceptance of children being overweight or obese was a facilitator to programme adherence. This was evidenced in 6 qualitative studies (3 [++][1–3], 2 [+][4,5], 1 [–][6]). This evidence is directly applicable as the studies were conducted in community settings in the UK or similar countries (United States[1], Sweden[2]).

[1] Gellar 2012

[2] Morinder 2011

[3] Owen 2009

[4] Jinks 2010

[5] Twiddy 2012

[6] Dixey 2006.

Evidence statement 2.1.9 Barrier: lack of children's motivation

Programme users and providers shared views that children's lack of motivation was a barrier to uptake of lifestyle weight management programmes. This was described in 1 (+) qualitative[1] study and 1 process evaluation[2]. Lack of motivation was also described by programme users and providers as a barrier to programme adherence in 7 studies (1 [++] qualitative[3], 3 [+] qualitative[1,4,5], 1 [–] cross-sectional[6] ,1 [–] qualitative[7], and 1 process evaluation[8]). This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (Australia[2,8], Sweden[3], Canada[5], the USA[6]).

[1] Twiddy 2012

[2] Truby 2011

[3] Morinder 2011

[4] Jinks 2010

[5] Kitscha 2009

[6] Barlow 2006

[7] Dixey 2006

[8] Brennan 2012.

Evidence statement 2.1.10 Barrier: lack of awareness and acceptance of children being overweight or obese

Family and provider perspectives in 5 studies (1 [++] qualitative[1], 2 [+] qualitative[2,3], 1 [+] cross-sectional[4] and 1 [–] qualitative study[5]) indicated that some families do not acknowledge or recognise that their child is overweight or obese, which hindered programme uptake and adherence. This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (Canada[1], Belgium[3]).

[1] Farnesi 2012

[2] Stewart 2008

[3] Murtagh 2006

[4] Braet 2010

[5] CI Research 2009.

Evidence statement 2.1.11 Barrier: children's and their parents' apprehension

A strong theme identified in 5 qualitative studies (1 [++][1], 3 [+][2–4] and 1 [–][5]) was the anxiety and apprehension described by children and parents about joining weight management programmes. Concerns manifested as general fears of the unknown (for example, anxieties of meeting new people, struggling to make friends or worries of being the largest on the programme). In addition, there were reports in 3 qualitative studies (1 [+][2], 2 [–][5,6]) and 1 process evaluation[7] of programme users having negative perceptions of the programme characteristics and eligibility criteria prior to starting the intervention. This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (USA[1]).

[1] Gellar 2012

[2] Holt 2005

[3] Stewart 2008

[4] Watson 2012a

[5] Withnall 2008

[6] CI Research 2009

[7] Robertson 2009.

Evidence statement 2.1.12 Barrier: individual and family demands

Parents and children described a range of individual and family demands, such as busy lifestyles, homework, work or family commitments. These were indicated as obstacles to programme uptake or adherence in 10 studies (2

[++] qualitative[1,2], 3 [+] qualitative[3–5], 1 [+] cross-sectional[6], 1 [–] cross-sectional[7], 1 [–] qualitative[8] and 2 process evaluations [9,10]). This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (Australia[1,9], Canada[2], Iceland[3], Belgium[6.]).

[1] Perry 2008

[2] Farnesi 2012

[3] Gunnarsdottir 2011

[4] Watson 2012a

[5] Stewart 2008

[6] Braet 2010

[7] Barlow 2006

[8] CI Research 2009

[9] Brennan 2012

[10] Golley 2007.

Evidence statement 2.1.13 Facilitator: parental support

Both providers and children were reported as believing parental support to be an important facilitator of successful lifestyle weight management interventions**.** High levels of parental support and their role in children's weight management was described in 5 qualitative studies (1 [++][1], 3 [+][2–4] 1 [–][5]). A (+) cross-sectional study[6] identified parents 'motivation for treatment as a statistically significant predictor of programme completion. This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (the USA[2], Belgium[6]).

[1] Staniford 2011

[2] Alm 2008

[3] Stewart 2008

[4] Twiddy 2012

[5] Dixey 2006

[6] Braet 2010.

Evidence statement 2.1.14 Facilitator: parental motivation

Parental motivation was perceived to be a critical factor in children's successful engagement with weight management programmes, as evidenced in 7 studies: 3 qualitative (2 [+][1,2], 1 [–][3]); 3 cross-sectional surveys (2 [+][4,5], 1 [–][6]) and 1 process evaluation[7]. Perceptions of high levels of parental motivation were reported in 3 studies, primarily from parents[1–3] while providers acknowledged high parent motivation in only 1 study[2]. Two studies found a statistically significant association between motivated parents and either programme uptake[5] or completion[4]. This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (Belgium[4], Australia[5], the USA[7]).

[1] Jinks 2010

[2] Twiddy 2012

[3] CI Research 2009

[4] Braet 2010

[5] Dhingra 2011

[6] Watson 2012b

[7] Barlow 2006.

Evidence statement 2.1.15 Barrier: lack of parental support

Providers reported a lack of parental support acting as a barrier to children's weight management in 4 qualitative studies (1 [++][1], 2 [+][2,3], 1 [–][4]). Three of these studies[1,3,4] described provider perceptions that parents did not realise their role as agents of change and they looked to the programme to solve children's weight management difficulties. This evidence is directly applicable as studies were conducted in the UK in a community setting.

[1] Staniford 2011

[2] Avery 2012

[3] Twiddy 2012

[4] CI Research 2009.

Evidence statement 2. 1.16 Barrier: lack of parental motivation

Programme providers described how low parental motivation hindered children's weight management in 1 (+) qualitative study[1], 1 (–) qualitative study[2] and 1 process evaluation[3]. In addition, a small proportion of parents (4.7%) cited lack of family readiness to change as a reason for dropping out of a lifestyle weight management programme in 1 (–) cross-sectional study[4].This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (Belgium[4], USA).

[1] Jinks 2010

[2] CI Research 2009

[3] Watson 2012b

[4] Barlow 2006.

Evidence statement 2.1.17 Barrier: lack of support from other family members

Children and parents described situations where other family members (either partners or members outside of the nucleus family such as grandparents) did not support and even sabotaged children's weight management attempts. This was described in 8 qualitative studies (2 [++][1,2], 4 [+][3–6], 1 [–][7]). This evidence is directly applicable as studies were conducted in community settings in the UK or similar countries (USA[3]).

[1] Owen 2009

[2] Staniford 2011

[3] Alm 2008

[4] Hester 2010

[5] Stewart 2008

[6] Twiddy 2012

[7] Dixey 2006.

Evidence statement 2. 1.18 Barrier: lack of awareness

Both providers and programme users identified a lack of awareness of local weight management programmes. Providers considered poor programme publicity to be the reason why potential users were unaware of the programme in one process evaluation[1]. Programme users also reflected on the lack of programme awareness among children and families in 4 qualitative studies (1 [+][2], 3 [–][3–5]). Providers and users also referred to health professionals' lack of programme awareness in 1 process evaluation[6] and 1 qualitative study[4]. This evidence is directly applicable as all studies were conducted in UK community settings.

[1] Watson 2012b

[2] Watson 2012a

[3] Dixey 2006

[4] CI Research 2009

[5] Withnall 2008

[6] Watson 2008.

Evidence statement 2.1.19 Role of health professionals

Both programme users and providers felt health professionals such as GPs, nurses and health visitors should raise awareness or refer children to lifestyle weight management programmes. However, varying opinions were offered on whether this was being sufficiently implemented. Examples of awareness-raising by other professionals were reported by providers or programme users in 2 (+) qualitative studies[1,2], 1 (–) qualitative study[3] and 1 process

evaluation[4]. However, providers in 3 studies (1 [+] qualitative[5], 2 process evaluations[6,7]) and programme users in 1 (+) qualitative study[8], described circumstances in which children were not referred, or inappropriate referrals were made. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (USA[8]).

[1] Stewart 2008

[2] Watson 2012a

[3] CI Research 2009

[4] Watson 2012b

[5] Jinks 2010

[6] Wolman 2008

[7] Watson 2008

[8] Woolford 2011.

Evidence statement 2.1.20 Facilitator: recruitment suggestions

Programme users and providers offered varied suggestions for future programme recruitment strategies in 8 studies (2 [++] qualitative[1,2], 4 process evaluations[3–6], 2 [–] qualitative[7,8]). Increasing referral routes, recruiting through schools and family support workers, was suggested by both programme providers[1,2,4,5,7] and users[8]; advertising in local media was suggested by providers and users[7]. Providers also mentioned ensuring programme aims and characteristics were sufficiently described[3] and offering rolling programmes that allow families to join on an ongoing basis[6]. Users felt that emphasising the healthy living and fun aspects of programmes rather than weight management would promote uptake[8]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (USA[1]).

[1] Gellar 2012

[2] Jinks 2010

[3] Robertson 2009

[4] Watson 2008

[5] Watson 2012b

[6] Wolman 2008

[7] CI Research 2009

[8] Withnall 2008.

Evidence statement 2.1.22 Facilitator: venue

Programme users valued the comfortable and welcoming environment of their programme venues in 2 (+) qualitative studies, which were either located in a clinic[1] or at schools[2]. Community settings and schools were suggested by providers and programme users as suitable venues in 1 (++) qualitative study[3] and 2 process evaluations[4,5]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[1]).

[1] Kitschna 2009

[2] Watson 2012a

[3] Staniford 2012

[4] Robertson 2009

[5] Watson 2008.

Evidence statement 2.1.23 Facilitator: family involvement

Providers, children and families valued a delivery approach that incorporated family involvement in lifestyle weight management programmes, perceiving it to facilitate behaviour change. Users expressed these views in 9 studies (2 [++] qualitative[1,2], 4 [+] qualitative[3–6], and 4 process evaluations[7–10]) and providers in 3 studies (1 [++] qualitative study[11], 1 [–] qualitative study[12] and 1 process evaluation[8]). Regarding specific parenting education sessions, users in receipt of these interventions liked the emphasis on positive parenting[9,10]

and separate children and parent sessions addressing the same topic as each other[10]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[2,5], Canada[4], USA[1]).

[1] Gellar 2012

[2] Perry 2008

[3] Jinks 2010

[4] Kitscha 2009

[5] Pescud 2010

[6] Twiddy 2012

[7] Watson 2012a

[8] Watson 2008

[9] Golley 2007

[10] Robertson 2009

[10] Watson 2012b

[11] Staniford 2011

[12] CI Research 2009.

Evidence statement 2.1.24 Facilitator: group intervention sessions with peers

There was evidence from 13 studies (2 [++] qualitative[1,2], 3 [+] qualitative[3–5], 3 [–] qualitative[6–8], 5 process evaluations[9–13]) that group-based sessions and interaction with peers were highly valued by children and parents. Interventions incorporating group sessions/peer interactions were perceived to be opportunities to share experiences, and give and receive support from people facing similar problems. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Sweden[1]).

[1] Morinder 2011

[2] Staniford 2011

[3] Holt 2005

[4] Jinks 2010

[5] Watson 2012a

[6] CI Research 2009

[7] Dixey 2006

[8] Monastra 2005

[9] Golley 2007

[10] Pittson Unpublished

[11] Robertson 2009

[12] Watson 2008

[13] Watson 2012b.

Evidence statement 2.1.25 Facilitator: goal setting

Programme users and providers shared the view that the use of goal setting (which may or may not also involve rewards) was a beneficial feature of interventions, and emphasised the importance of frequent but small and realistic goals. This was evidenced in 11 studies (2 [++] qualitative[1,2], 6 [+] qualitative[3–8], and 3 process evaluations[9–11]). This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[2,4], USA[3]).

[1] Owen 2009

[2] Farnesi 2012

[3] Alm 2008

[4] Kitscha 2009

[5] Stewart 2008

[6] Twiddy 2012

[7] Tyler 2008

[8] Watson 2012a

[9] Pittson unpublished

[10] Watson 2008

[11] Watson 2012b.

Evidence statement 2.1.26 Facilitator: user-tailored interventions

Programme users and providers highly valued the interventions that were tailored to the user in 9 studies (6 qualitative: 2 [++][1,2] 2[+][3,4] 2[-][6,7]; 1[+] cross-sectional survey[5] and 2 process evaluations[,8,9]).

Interventions were viewed positively if they were tailored to different population groups of children (for example, age, gender, ethnicity) by parents[7], providers[2] and children[4]. There was a strong emphasis on the value of interventions addressing the individual personal needs of programme users. Programme users commented on the importance of identifying and adjusting interventions to the needs, goals, motives[1,9] or existing knowledge[3] of individual participants. Providers in 1 study recommended tailoring programmes to children's age, ethnicity, degree of obesity and their readiness for change[2]. Authors in 1 study also commented on the benefits of collaborating with families to create individual goals and strategies. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[3], USA[4,7] and Sweden[1]).

[1] Morinder 2011

[2] Staniford 2011

[3] Kitscha 2009

[5] Woolford 2011

[5] CI Research 2009

[6] Dixey 2006

[7] Tyler 2008

[8] Jones 2010

[9] Watson 2008.

Evidence statement 2.1.27 Facilitator: monitoring and feedback

There was evidence from 10 studies that regular monitoring and feedback of weight management progress, was highly valued by programme users and providers (2 [++] qualitative[1,2], 4 [+] qualitative[3–6], 2 [–] qualitative studies[7,8], and 2 process evaluations[9,10]). This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Sweden[1]).

[1] Morinder 2011

[2] Farnesi 2012

[3] Stewart 2008

[4] Jinks 2010

[5] Watson 2012a

[6] Woolford 2011

[7] CI Research 2009

[8] Dixey 2006

[9] Robertson 2009

[10] Watson 2012b.

Evidence statement 2.1.28 Facilitators: scheduling suggestions

Suggestions for improving programme scheduling were offered by programme users and providers in 9 studies (1 [++] qualitative[1], 2 [+] qualitative[2,3], 1 [+] qualitative[4], 1 [+] cross-sectional survey[5] and 4 process evaluations[6–9]). More flexible appointment times, such as in the evening or weekends were suggested by programme users[2–6,9] and providers[2,7]. Programme users also

wanted increased frequency of appointments to maintain their motivation[1,2]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[9], USA[4]).

[1] Owen 2009

[2] Jinks 2010

[3] Watson 2012a

[4] Cote 2004

[5] Jones 2010

[6] Robertson 2009

[7] Watson 2008

[8] Watson 2012b

[9] Truby 2011.

Evidence statement 2.1.29 Barrier: inconvenient intervention scheduling

Scheduling of interventions (for example, timing, length of individual sessions) were important influences on programme users but no clear consensus was described on what this should be.

Potential users cited inconvenient timing of programmes as a reason for not joining programmes in 1 (–) qualitative study[1] and 2 process evaluations[2,3]. Programme attendees also reported difficult scheduling as a barrier to continued participation in 10 studies (2 [++] qualitative studies[4,5], 2 [+] qualitative studies[6,7], 1 [+] cross-sectional survey [8], 3 process evaluations[9–11], 1 [–] cross-sectional[12] and 1 [–] qualitative study[13]). Programme users in 1 survey[12] disagreed on how the frequency of appointments resulted in their attendance or drop-out. 11.6% dropped out of programmes as appointments were not frequent enough, whereas 7% stated they were too frequent. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[3], Canada[4], USA[8,12]).

[1] CI Research 2009

[2] Pittson unpublished

[3] Truby 2011

[4] Farnesi 2012

[5] Owen 2009

[6] Jinks 2010

[7] Kitscha 2009

[8] Cote 2004

[9] Golley 2007

[10] Robertson 2009

[11] Watson 2008

[12] Barlow 2006

[13] CI Research 2009.

Evidence statement 2.1.30 Barrier: venue location

Negative comments regarding programme venues were expressed in 6 studies (3 [+] qualitative[1–3], 1 [–] qualitative[4], 1 [–] cross-sectional survey[5] and 1 process evaluation[6]). Challenges relating to locations being too far away, difficult to reach, or hindered by traffic problems at peak times were described by both providers[2,6] and users[1–6]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[3] and USA[5]).

[1] Watson 2012a

[2] Jinks 2010

[3] Kitschna 2009

[4] CI Research 2009

[5] Barlow 2006

[6] Robertson 2009.

Evidence statement 2.1.31 Barrier: challenges in goal setting

Challenges of setting goals within programmes were highlighted by users and providers in 3 studies (1 [++] qualitative[1], and 2 process evaluations[2,3]). Programme users spoke negatively about too many goals being set[2], long-term goals not being revisited or monitored[3] or goals not being matched to those valued by the child[1]. Providers described difficulties in designing goals for users[3]. This evidence is directly applicable as all studies conducted in community settings in the UK or similar countries (Sweden[1], Australia[2]).

[1] Morinder 2011

[2] Brennan 2012

[3] Watson 2012b.

Evidence statement 2.1.32 Facilitator: practical intervention elements

A recurring theme within studies was that programme users particularly liked the practical elements of their intervention sessions, as evidenced in 11 studies: 7 qualitative (1 [++][1], 4 [+][2–5], 2 [-][6,7]) and 4 process evaluations[8–11].

Regarding dietary components, children and/or parents enjoyed cookery lessons in particular enjoyed or wanted the programme to incorporate more of these[2,4,6,11]. Specific directive information was also valued, including the provision of recipes[7], eating plans[1,8] or messages that 'told them what to do'[5]. Education on food in supermarkets was also valued[2,7] with 1 study suggesting that education on labels should be followed up with trips to the supermarket[2].

Regarding physical activity education, children consistently commented on enjoying games and physical exercise sessions, and views indicated they would like more activities within the intervention[3,6,9,11]. Some parents also wanted more exercise sessions[2,4,10], though some parents expressed negative views of physical activity sessions[2]. Variety in the available activities

was also valued[4,11]. This evidence is directly applicable as all studies were conducted in community settings in the UK.

[1] Owen 2009

[2] Jinks 2010

[3] Staniford 2011

[4] Watson 2012a

[5] Woolford 2011

[6] CI Research 2009

[7] WIthnall 2008

[8] Golley 2007

[9] Pittson Unpublished

[10] Robertson 2009

[11] Watson 2008.

Evidence statement 2.1.33 Facilitator: behavioural change components

Parents and children had positive views of the behavioural change elements in the programmes they received, evidenced in 7 studies: 5 qualitative (1 [++][1], 2 [+][2,3] , 2 [-][4,5]) and 2 process evaluations[6,7]. Positive comments were stated regarding: understanding the 'how and why' of their eating behaviour[1,6], learning about their feelings and being able to talk about how they feel[5], or learning about stress and how to cope with it[7]. One study reported that users believed lifestyle weight management programmes should include physical activity, nutrition and psychological components[2]**.** This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[1], the USA[5]).

[1] Farnesi 2012

[2] Staniford 2011

[3] Stewart 2008

[4] CI Research 2009

[5] Monastra 2005

[6] Golley 2007

[7] Robertson 2009.

Evidence statement 2.1.34 Barrier: relevance of intervention to home life

Seven studies described children and/or their families concerns with the relevance and ease of managing their weight outside in their home life or after leaving their programme (4 [++][1–4], 1 [+],[5], 1 [–][6] qualitative and 1 [+][7] cross-sectional study). This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Belgium) [7].

[1] Owen 2009

[2] Staniford 2011

[3] Morinder 2011

[4] Hester 2010

[5] Stewart 2008

[6] CI Research 2009

[7] Braet 2010.

Evidence statement 2.1.35 Facilitator: post-intervention support and follow-up

Seven studies (1 [++] qualitative[1], 2 [+] qualitative[2,3], 2 [–] qualitative[4,5], 2 process evaluations[6,7]) identified that the continuation of professional support following completion of the programme was important to users. Families wanted support to continue and thought it would be helpful for ensuring that weight management goals were continued.

Very little detail was provided regarding the forms this support should take. Parents in one study[4] suggested follow-up letters, meetings or continuation sessions. Parents in another study[5] proposed a long-term financial subsidy to

encourage children and young people to maintain participation in formal activities.

This evidence is directly applicable as all studies were conducted in UK community settings.

[1] Staniford 2011

[2] Stewart 2008

[3] Watson 2012a

[4] CI Research 2009

[5] Withnall 2008

[6] Golley 2007

[7] Robertson 2009.

Evidence statement 2.1.36 Facilitator: personal strategies to sustain weight management behaviour

Parents in 3 studies (2 [+] qualitative[1,2], 1 process evaluation[3]) described a range of strategies they employed to facilitate continuation of their children's weight management behaviour. These included staying consistent[2,3] setting planned routines[3], enjoying their new healthy lifestyle[3], and seeking additional support[1]. This evidence is directly applicable as all studies were conducted in the UK community settings.

[1] Jinks 2010

[2] Watson 2012a

[3] Golley 2007.

Evidence statement 2.1.37 Barrier: attendance at follow-up sessions

Despite strong support for professional follow-up after completion of weight management programmes, children and parent views in 3 studies suggested that the content and timing of potential support may impact on the uptake of

sessions if they did not appeal to programme users or conflicted with their competing interests. This was indicated in 3 qualitative studies: (1 [++][1], 1 [+][2] and 1 [–][3]). This evidence is directly applicable as studies were conducted in the UK community settings[1,3] or similar countries (Canada[2]).

[1] Staniford 2011

[2] Kitscha 2009

[3] CI Research 2009.

Evidence statement 2.1.38 Facilitator: building good child/family-provider relationships

There was evidence from 15 studies (3 [++] qualitative[1–3], 6 [+] qualitative[4–9], 4 process evaluations[10–13], and 2 [–] qualitative[14,15]) of children's and parents' perspectives, that provider characteristics were key factors for continued participation in weight management programmes and behaviour change attempts. Valued characteristics included the encouraging, non-judgemental tone of providers[1,3,5,7,9,14], and continuity of staff[6]. Parents also appreciated the role providers had in acting as voices of authority that parents could rely on to educate children[3,7]. Provider perspectives in 2 of these studies also suggested that staff were aware of the importance of establishing good relationships with programme users and their families[1,6]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[1,]Sweden[2], the USA[9,] Australia[14]).

[1] Farnesi 2012

[2] Morinder 2011

[3] Owen 2009

[4] Alm 2008

[5] Holt 2005

[6] Twiddy 2012

[7] Watson 2012a

[8] Stewart 2008

[9] Woolford 2011

[10] Golley 2007

[11] Jones 2010

[12] Robertson 2009

[13] Watson 2008

[14] Monastra 2005

[15] CI Research 2009.

Evidence statement 2.1.39 Barrier: negative opinions of providers' characteristics

Six studies (2 [++] qualitative[1,2], 2 [+] qualitative[3,4], 1 process evaluation[5], 1 [–] qualitative[6]) described how negative opinions of provider dynamics influenced user engagement. Children and parents provided examples of poor user-provider relationships and suggested they hindered engagement with programmes or weight management behaviour[1–5]. Providers also recognised the negative effect bad relationships with users[1] and staff discontinuity[6] could have on programme adherence[6]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[1,] Sweden[2]).

[1] Farnesi 2012

[2] Morinder 2011

[3] Stewart 2008

[4] Twiddy 2012

[5] Watson 2012b

[6] CI Research 2009.

Evidence statement 2.1.40 Facilitator: collaborative multi-disciplinary teams

Three studies (1 [+] qualitative study[1], 1 process evaluation[2] and 1 [+] cross-sectional survey[3]) indicated that providers highly valued working within effective collaborative multi-disciplinary teams. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[3]).

[1] Jinks 2010

[2] Watson 2008

[3] Gunn 2008.

Evidence statement 2.1.41 Facilitator: provider highly valued opportunities for training

Three studies (1 [+] qualitative[1], 1 process evaluation[2] and 1 [+] cross-sectional survey[3]) reported that providers were keen to receive relevant training that would help them gain necessary skills to effectively deliver interventions. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[2]).

[1] Jinks 2010

[2] Gunn 2008

[3] Watson 2012b.

Evidence statement 2.1.42 Barrier: provider gaps in knowledge

Three studies (1 [+] qualitative study[1], 1 [+] cross-sectional study[2] and 1 process evaluation[3]) referred to providers' perceptions of their skills and knowledge. Three studies indicated some providers felt unqualified to deliver interventions, specifically where interventions were broad in their nature, or were delivered to a varying user group who sometimes had complex psychosocial needs. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[2]).

[1] Jinks 2010

[2] Gunn 2008

[3] Watson 2012b.

Evidence statement 2.2.4 Pre-adolescent children (6–13 years)

A wide range of themes were described in 16 studies of school-age children: 7 qualitative (3 [++][1–3], 3 [+][4–6], 1 [–][7]), 1 (+) correlation[8], 2 cross-sectional[9,10], 6 process evaluations[11–16]. However none of the studies were designed to explore differences in barriers and facilitators compared to other age groups.

Commonly shared facilitators across studies were the importance of non-weight outcomes such as psychological wellbeing[3,4,5,14–16], social outcomes such as making friends [3,5,14] and reduced bullying[3,17]; interventions with a whole-family approach[2–4 12,14–16]; positive provider characteristics[1,5,11,12,16] **;** group-based sessions with peers[12, 14, 15,16]; regular monitoring and feedback[1,5,14, 16]; and post-intervention support[3,5,12,14]. Commonly shared barriers across studies were poor relationships of providers with children and/or their parents[1,5,16]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Canada[1], Australia[2,4], the USA[6,7], Iceland[8], Belgium[9]).

[1] Farnesi 2012

[2] Perry 2008

[3] Staniford 2011

[4] Pescud 2010

[5] Stewart 2008

[6] Tyler 2008

[7] Pinard 2012

[8] Gunnarsdottir 2012

[9] Braet 2010

[10] Gunn 2008

[11] Jones 2010

[12] Golley 2007

[13] Pittson 2011

[14] Robertson 2009

[15] Watson 2008

[16] Watson 2012b

[17] Murtagh 2006.

Evidence statement 2.2.5 Adolescents

A wide range of themes were described in 10 studies of adolescents (2 [++] qualitative[1,2], 3 [+] qualitative[3–5], 1 [+] cross-sectional survey[6], 4 process evaluations[7–10]). However none of the studies were designed to explore differences in barriers and facilitators for adolescents when compared with other age groups. Facilitators shared across 3 or more studies were the importance of psychological wellbeing as an outcome[2,3,5] and positive provider characteristics[2,5, 6]. Commonly shared barriers across studies were: perceived lack of parental support[1,4,5,10] and concern regarding unintended consequences of weight management programmes.[2,3,6]. This evidence is directly applicable as all studies were conducted in community settings in the UK or similar countries (Australia[7–10] the USA[1,5,6] and Sweden[2]).

[1] Gellar 2012

[2] Morinder 2011

[3] Hester 2010,

[4] Avery 2012

[5] Alm 2008

[6] Woolford 2011

[7] Dhingra 2011

[8] Truby 2011

[9] Kornman 2010

[10] Brennan 2012.

Expert papers and commissioned report

- Expert papers 1–6.
- Commissioned report.

For details see What evidence is the guidance based on?

Economic modelling

The economic model considered the BMI trajectory of children in 3 different age groups (2–5 years, 7–11 years and 12–17 years). It considered boys and girls separately. It also considered 3 starting weights for each age group and each sex. (The starting weights considered were: the borderline between healthy weight and overweight, between overweight and obese, and between obese and morbidly obese.)

The model examined what happened to each cohort if there was no intervention. It estimated their weight and quality of life on an annual basis and their life expectancy. It also estimated the costs of any health problems they would face during their lifetime.

The model was then set up to answer 2 questions:

- What would happen to the quality of life and the life expectancy of each of these groups of children or young adults if an intervention from the evidence review was applied?
- How would the future costs of treating diseases change as the result of the intervention?

The difference between the subsequent life-long pathways of these 2 hypothetical situations (that is, ‘with an intervention’ and ‘without an intervention’) was expressed in terms of quality-adjusted life years (QALYs) gained from the intervention. It was also expressed in terms of the cost of the intervention less the future costs saved. The resulting estimate for a cost per QALY gained was compared with the maximum that the NHS might be expected to pay for a QALY gained. (NICE assumes this figure to be between £20,000 and £30,000.)

It is estimated that an intervention costing £100 per child would be cost effective provided a child’s weight is as little as 0.5% lower than it would have been without it. However, this is only the case if the 0.5% weight difference is maintained throughout life. If they regained the weight within 10 years or less, it is estimated that the intervention would no longer be cost effective.

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 and expert comment. These gaps are set out below.

1. There is a lack of data on how to involve male children and young men in lifestyle weight management programmes.

(Source: evidence review 1)

2. There is a lack of data on effective lifestyle weight management programmes for children and young people with disabilities, learning difficulties or other special needs.

(Source: evidence reviews 1 and 2)

3. There is a lack of data on effective and cost effective approaches to weight management for children aged under 6 years, including the views of their parents and families. In addition, there is a lack of data on the barriers to, and facilitators for, encouraging these children to complete a lifestyle weight management programme.

(Source: evidence reviews 1 and 2)

4. There is a lack of data on how the barriers to, and facilitators for, participating in a lifestyle weight management programme varies according to socioeconomic group, ethnicity, gender and age.

(Source: evidence review 2)

5. There is a lack of standardised reporting for the behavioural therapy and cognitive behavioural therapy (CBT) components used by programme developers. This makes it difficult to evaluate these components of a lifestyle weight management programme.

(Source: expert paper 6)

6. There is a lack of evidence on the lifetime effects of weight management programmes. (Such data are crucial for assessing cost effectiveness.)

   (Source: Economic modelling report)

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.

Peymane Adab Senior Clinical Lecturer in Public Health, Department of Public Health, Epidemiology and Biostatistics, University of Birmingham

Paige Ataou Community member

Claire Bennett Health Promotion Strategist, London Borough of Islington

Julia Burrows Consultant in Public Health, Bradford Metropolitan District Council (formerly employed by NHS Airedale, Bradford and Leeds)

Janice Christie Senior Lecturer in Public Health and Primary Care, City University, London

Elisabeth Fenwick Senior Lecturer in Health Economics, Centre for Health Economics and Health Technology Assessment, Institute of Health and Wellbeing, University of Glasgow

Orla Flannery Lecturer in Sport and Exercise Psychology, University of Gloucestershire

Rajeev Gupta Consultant Paediatrician, Barnsley Foundation Hospital NHS Trust and Honorary Senior Clinical Lecturer, University of Sheffield

Julian Hamilton-Shield Professor in Diabetes and Metabolic Endocrinology, University of Bristol

Alexandra Jones Lead Commissioner: Early Intervention and Prevention, Wigan Council and NHS Ashton, Leigh and Wigan

Alan Maryon-Davis (Chair) Honorary Professor of Public Health, Department of Primary Care and Public Health Sciences, King's College London School of Medicine

Helen Pittson (Until November 2012) Service Manager, NHS Telford and Wrekin

Sarah Mills Public Health Programme Manager, NHS England Area Team, Arden, Herefordshire and Worcestershire

Paula Watson Lecturer in Exercise and Health Psychology, Liverpool John Moores University

Laura Webber Modelling Researcher, National Heart Forum

Jane Wells Assistant Director of Public Health, NHS Berkshire

Stephen Westgarth Consultant Child and Adolescent Psychiatrist, Northumberland, Tyne and Wear NHS Foundation Trust and Medical Director of Child Psychiatry UK.

Sarah West-Sadler Community member

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Mike Kelly CPHE Director

Tricia Younger (until Dec 2012) Associate Director

Jane Huntley (from Dec 2012) Associate Director

Karen Peploe Lead Analyst

Nicola Ainsworth Analyst (up to April 2013)

Hugo Crombie Analyst

Caroline Mulvihill Analyst

Alastair Fischer Technical Adviser, Health Economics

Patricia Mountain Project Manager

Rukshana Begum Coordinator

Sue Jelley Senior Editor

Alison Lake Editor

12 About this guidance

Why is this guidance being produced?

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, below, and Related NICE guidance respectively).

How was this guidance developed?

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

Members of the PDG are listed in Membership of the Programme Development Group/Public Health Interventions Committee 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: 'Effectiveness and cost effectiveness of lifestyle weight management services for children and young people', was carried out by Support Unit for Research Evidence (SURE), Cardiff University. The principal authors were: Fiona Morgan, Alison Weightman, (SURE, Cardiff University) Sarah Whitehead (DECIPHer, Cardiff University) and Sinead Brophy (DECIPHer, Swansea University).

  - Review 2: ‘The barriers and facilitators to implementing lifestyle weight management programmes for children and young people’, was carried out by SURE, Cardiff University. The principal authors were: Ruth Turley, Alison Weightman, (SURE, Cardiff University), Elizabeth Halstead (Bangor University) and Helen Morgan (SURE, Cardiff University).

- Economic modelling: ‘Managing overweight and obesity among children economic modelling report’, was carried out by the National Heart Forum and the University of East Anglia. The principal authors were: Martin Brown, Tim Marsh and Ketevan Rtveladze (National Heart Forum) and Ric Fordham (University of East Anglia).

- Commissioned report: ‘Practical and process issues in the provision of lifestyle weight management services for children and young people’, was carried out by GK Research. The author was Graham Kelly.

- Expert papers:
  - Expert paper 1 ‘Findings of the former Childhood Obesity National Support Team’ by Kim Hastie, Head of former Childhood Obesity National Support Team.
  - Expert paper 2 ‘Implications of the transition of public health responsibilities to local government’ by Helen Walters, Greater London Authority
  - Expert paper 3 ‘Psychological considerations for lifestyle weight management programmes for children and young people, and the use of behaviour change theories’ by Andrew Hill, University of Leeds
  - Expert paper 4 ‘Choosing outcome measures for lifestyle weight management programmes for children’ by Maria Bryant, University of Leeds

- Expert paper 5 ‘A population-level evaluation of a family-based community intervention for childhood overweight and obesity’ by Catherine Law and Helen Roberts, Institute of Child Health, University College, London
- Expert paper 6 ‘Effective Behavioural Components for Childhood weight management programmes’ by Pinki Sahota, Leeds Metropolitan University

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

Status of this guidance

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

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

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

The key dates are:

Closing date for comments: 18 June 2013.

Next PDG meeting: 16 and 17 July 2013 – this is the date for the PDG meeting when stakeholder comments will be discussed.

Implementation

NICE guidance can help:

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

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

Updating the recommendations

This section will be completed in the final document