

# Obesity: identification, assessment and management

Clinical guideline

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[www.nice.org.uk/guidance/cg189](https://www.nice.org.uk/guidance/cg189)

## Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should [assess and reduce the environmental impact of implementing NICE recommendations](#) wherever possible.

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This guideline replaces PH46.

This guideline partially replaces CG43.

This guideline is the basis of QS127 and QS167.

## Overview

This guideline covers identifying, assessing and managing obesity in children (aged 2 years and over), young people and adults.

NICE has also produced [guidelines on obesity prevention, maintaining a healthy weight, and managing overweight and obesity in adults](#) and in [children and young people](#).

## Who is it for?

- Healthcare professionals
- Commissioners and providers
- People who are living with obesity and their families and carers

# Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

## 1.1 Generic principles of care

### Adults

- 1.1.1 Equip specialist settings for treating people who are living with severe obesity with, for example, special seating and adequate weighing and monitoring equipment. Ensure hospitals have access to specialist equipment, such as larger scanners and beds, when providing general care for people who are living with severe obesity. **[2006, amended 2014]**
- 1.1.2 Discuss the choice of interventions for weight management with the person. The choice of intervention should be agreed with the person. **[2006, amended 2014]**
- 1.1.3 Tailor the components of the planned weight management programme to the person's preferences, initial fitness, health status and lifestyle. **[2006]**

### Children

- 1.1.4 Coordinate the care of children and young people around their individual and family needs. Comply with the approaches outlined in the [Department of Health and Social Care's call to action on obesity in England](#).

See also [NICE's guideline on managing overweight and obesity in children and young people](#). **[2006, amended 2014]**

- 1.1.5 Aim to create a supportive environment that helps a child who is overweight or who has obesity, and their family, make lifestyle changes. (The committee noted that 'environment' could include settings other than the home, for example, schools.) **[2006, amended 2014]**
- 1.1.6 Make decisions about the care of a child who is overweight or has obesity (including assessment and agreeing goals and actions) together with the child and family. Tailor interventions to the needs and preferences of the child and the family. **[2006]**
- 1.1.7 Ensure that interventions for children who are living with overweight or obesity address lifestyle within the family and in social settings. **[2006, amended 2014]**
- 1.1.8 Encourage parents (or carers) to take main responsibility for lifestyle changes in children who are living with overweight or obesity, especially if they are younger than 12 years. Take into account the age and maturity of the child, and the preferences of the child and the parents. **[2006]**

## Adults and children

- 1.1.9 Offer regular, non-discriminatory long-term follow up by a trained professional. Ensure continuity of care in the multidisciplinary team through good record keeping. **[2006]**

## 1.2 Identifying and assessing overweight, obesity and central adiposity

### Identification and assessment in adults

#### Taking measurements in adults

- 1.2.1 Use clinical judgement to decide when to measure a person's height and weight. Opportunities include when registering with a GP, consultations for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks. **[2006]**
- 1.2.2 Encourage adults with a body mass index (BMI) below 35 kg/m<sup>2</sup> to:
- measure their own waist-to-height ratio to assess central adiposity (the accumulation of excess fat in the abdominal area)
  - seek advice and further clinical assessments (such as a cardiometabolic risk factor assessment) from a healthcare professional if the measurement indicates an increased health risk.
- Explain to people that to accurately measure their waist and calculate their own waist-to-height ratio, they should follow the advice in box 1. **[2022]**
- 1.2.3 Direct people to resources that give advice on how to measure waist circumference, such as the [NHS BMI healthy weight calculator](#). See recommendations 1.2.11 and 1.2.12 for how to interpret waist-to-height ratio. **[2022]**

**Box 1 Method for people to measure their own waist and calculate their waist-to-height ratio**

### Measure

Find the bottom of the ribs and the top of the hips.

Wrap a tape measure around the waist midway between these points (this will be just above the belly button) and breathe out naturally before taking the measurement.

### Calculate

Measure waist circumference and height in the same units (either both in centimetres or both in inches). If you know your height in feet and inches, convert it to inches (for example, 5 feet 7 inches is 67 inches).

Divide waist measurement by height measurement. For example:

- 38 inches divided by 67 inches = waist-to-height ratio of 0.57 **or**
- 96.5 cm divided by 170 cm = waist-to-height ratio of 0.57.

## Measures of overweight, obesity and central adiposity in adults

- 1.2.4 Use BMI as a practical measure of overweight and obesity. Interpret it with caution because it is not a direct measure of central adiposity. **[2022]**
- 1.2.5 In adults with a BMI below 35 kg/m<sup>2</sup>, measure and use their waist-to-height ratio, as well as their BMI, as a practical estimate of central adiposity and use these measurements to help assess and predict health risks (for example, type 2 diabetes, hypertension or cardiovascular disease). **[2022]**
- 1.2.6 Do not use bioimpedance as a substitute for BMI as a measure of general adiposity in adults. **[2006, amended 2014]**

## Classifying overweight, obesity and central adiposity in adults

1.2.7 Define the degree of overweight or obesity in adults as follows, if they are not in the groups covered by recommendation 1.2.8:

- healthy weight: BMI 18.5 kg/m<sup>2</sup> to 24.9 kg/m<sup>2</sup>
- overweight: BMI 25 kg/m<sup>2</sup> to 29.9 kg/m<sup>2</sup>
- obesity class 1: BMI 30 kg/m<sup>2</sup> to 34.9 kg/m<sup>2</sup>
- obesity class 2: BMI 35 kg/m<sup>2</sup> to 39.9 kg/m<sup>2</sup>
- obesity class 3: BMI 40 kg/m<sup>2</sup> or more.

Use clinical judgement when interpreting the healthy weight category because a person in this category may nevertheless have central adiposity. See [Public Health England's guidance on obesity and weight management for people with learning disabilities](#) for information on reasonable adjustments that may need to be made. **[2022]**

1.2.8 People with a South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family background are prone to central adiposity and their cardiometabolic risk occurs at a lower BMI, so use lower BMI thresholds as a practical measure of overweight and obesity:

- overweight: BMI 23 kg/m<sup>2</sup> to 27.4 kg/m<sup>2</sup>
- obesity: BMI 27.5 kg/m<sup>2</sup> or above.

For people in these groups, obesity classes 2 and 3 are usually identified by reducing the thresholds highlighted in recommendation 1.2.7 by 2.5 kg/m<sup>2</sup>. **[2022]**

1.2.9 Interpret BMI with caution in adults with high muscle mass because it may be a less accurate measure of central adiposity in this group. **[2022]**

1.2.10 Interpret BMI with caution in people aged 65 and over, taking into account comorbidities, conditions that may affect functional capacity and the possible protective effect of having a slightly higher BMI when older. **[2022]**

1.2.11 Define the degree of central adiposity based on waist-to-height ratio as follows:

- healthy central adiposity: waist-to-height ratio 0.4 to 0.49, indicating no increased health risks
- increased central adiposity: waist-to-height ratio 0.5 to 0.59, indicating increased health risks
- high central adiposity: waist-to-height ratio 0.6 or more, indicating further increased health risks.

These classifications can be used for people with a BMI under 35 kg/m<sup>2</sup> of both sexes and all ethnicities, including adults with high muscle mass.

The health risks associated with higher levels of central adiposity include type 2 diabetes, hypertension and cardiovascular disease. **[2022]**

1.2.12 When talking to a person about their waist-to-height ratio, explain that they should try to keep their waist to half their height (so a waist-to-height ratio of under 0.5). **[2022]**

## Discussing the results

1.2.13 Ask the person's permission before talking about the degree of overweight, obesity and central adiposity, and discuss it in a sensitive manner. **[2022]**

1.2.14 Give adults information about the severity of their overweight or obesity and central adiposity and the impact this has on their risk of developing other long-term conditions (such as type 2 diabetes, cardiovascular disease, hypertension, dyslipidaemia, certain cancers and respiratory, musculoskeletal and other metabolic conditions such as non-alcoholic fatty liver disease). **[2006, amended 2022]**

1.2.15 Discuss and agree the level of intervention with adults who:

- are living with overweight or obesity **or**
- have increased health risk based on their waist-to-height ratio.

Take into account people's individual needs and preferences, and factors such as weight-related comorbidities, ethnicity, socioeconomic status, family medical history, and special educational needs and disabilities (SEND). See the [recommendations on lifestyle interventions, behavioural interventions, physical activity, dietary approaches, pharmacological interventions and surgical interventions](#). [2022]

- 1.2.16 Offer a higher level of intervention to people with weight-related comorbidities (see [recommendation 1.3.6 for details of comorbidities](#)). Adjust the approach depending on the person's clinical needs. For people who have recently developed diabetes, see the [section on when to offer expedited assessment](#), and for people with a BMI of 50 and over see [recommendation 1.3.7](#). [2022]

For a short explanation of why the committee made the 2022 recommendations and how they might affect practice, see the [rationale and impact section on identifying and assessing overweight, obesity and central adiposity in adults](#).

Full details of the evidence and the committee's discussion are in [evidence review A: accuracy of anthropometric measures in assessing health risks associated with overweight and obesity in adults](#).

### Targeted advice for people from Black, Asian and minority ethnic family backgrounds

- 1.2.17 Ensure healthcare professionals are aware that people from Black, Asian and minority ethnic family backgrounds are at an increased risk of chronic health conditions at a lower BMI than people from a white family background (below BMI 25 kg/m<sup>2</sup>). [2013]
- 1.2.18 Ensure people from Black, Asian and minority ethnic family backgrounds are aware that they face an increased risk of chronic health conditions at a lower BMI than people from a white family background (below BMI 25 kg/m<sup>2</sup>). [2013]
- 1.2.19 Use existing local information networks for people of Black and minority ethnic

family backgrounds to share information on the increased risks these groups face at a lower BMI. [2013]

## Identification and assessment in children and young people

### Taking measurements in children and young people

- 1.2.20 Use clinical judgement to decide when to measure a child or young person's height and weight. Opportunities include when registering with a GP, consultations for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks. [2006]

### Measures of overweight, obesity and central adiposity in children and young people

- 1.2.21 Use BMI as a practical estimate of overweight and obesity, and ensure that charts used are:

- appropriate for children and young people **and**
- adjusted for age and sex.

Interpret BMI with caution because it is not a direct measure of central adiposity. The [Royal College of Paediatrics and Child Health UK-World Health Organization \(WHO\) growth charts](#) and [BMI charts](#) should be used to plot and classify BMI centile. The [childhood and puberty close monitoring \(CPCM\) form](#) can also be used for continued BMI monitoring in children aged 2 and over, especially in instances where puberty is either premature or delayed. Refer to special BMI growth charts for children and young people with Down's syndrome, if needed. [2022]

- 1.2.22 Consider using waist-to-height ratio in children and young people aged 5 and over to assess and predict health risks associated with central adiposity (such as type 2 diabetes, hypertension or cardiovascular disease). See [box 1 for information on how the waist should be measured and how to calculate waist-to-](#)

height ratio. [2022]

- 1.2.23 Do not use bioimpedance as a substitute for BMI as a measure of general adiposity in children and young people. [2006, amended 2014]

## **Classifying overweight, obesity and central adiposity in children and young people**

- 1.2.24 Define the degree of overweight or obesity in children and young people using the following classifications:

- overweight: BMI 91st centile + 1.34 standard deviations (SDs)
- clinical obesity: BMI 98th centile + 2.05 SDs
- severe obesity: BMI 99.6th centile + 2.68 SDs.

Use clinical judgement when interpreting BMI below the 91st centile, especially the healthy weight category in BMI charts because a child or young person in this category may nevertheless have central adiposity. [2022]

- 1.2.25 Define the degree of central adiposity based on waist-to-height ratio in children and young people as follows:

- healthy central adiposity: waist-to-height ratio 0.4 to 0.49, indicating no increased health risk
- increased central adiposity: waist-to-height ratio 0.5 to 0.59, indicating increased health risk
- high central adiposity: waist-to-height ratio 0.6 or more, indicating further increased health risk.

These classifications can be used for children and young people of both sexes and all ethnicities.

The health risks associated with higher central adiposity levels include type 2

diabetes, hypertension and cardiovascular disease. [2022]

- 1.2.26 When talking to a child, young person, and their families and carers, explain that they should try to keep their waist to half their height (so a waist-to-height-ratio of under 0.5). [2022]

## Discussing the results

- 1.2.27 Ask permission from children, young people, and their families and carers before talking about the degree of overweight, obesity and central adiposity, and discuss it in a sensitive and age-appropriate manner. [2022]

## Choosing interventions

- 1.2.28 Consider tailored interventions for children and young people:

- who are living with overweight or obesity **or**
- have increased health risk based on their waist-to-height ratio.

Take into account their individual needs and preferences, and factors such as weight-related comorbidities, ethnicity, socioeconomic status, social complexity (for example, looked-after children and young people), family medical history, mental and emotional health and wellbeing, developmental age, and special educational needs and disabilities (SEND). See the [recommendations on lifestyle interventions](#), [behavioural interventions](#), [physical activity](#), [dietary approaches](#), [pharmacological interventions](#) and [surgical interventions](#). [2022]

- 1.2.29 Offer a higher level of intervention to children with weight-related comorbidities (see [recommendation 1.3.9 for details of comorbidities](#)). Adjust the approach depending on the child's clinical needs. For [pharmacological treatment in children with comorbidities](#), see [recommendations 1.8.5 and 1.8.6](#) and for [surgical interventions in young people with exceptional circumstances](#), see [recommendations 1.10.21 and 1.10.22](#). [2022]

For a short explanation of why the committee made the 2022 recommendations and how they might affect practice, see the [rationale and impact section on identifying and assessing overweight, obesity and central adiposity in children and young people](#).

Full details of the evidence and the committee's discussion are in [evidence review B: accuracy of anthropometric measures in assessing health risks associated with overweight and obesity in children and young people](#).

## 1.3 Assessment

### Adults and children

- 1.3.1 Make an initial assessment (see recommendations 1.3.6 and 1.3.8), then use clinical judgement to investigate comorbidities and other factors to an appropriate level of detail, depending on the person, the timing of the assessment, the degree of overweight or obesity, and the results of previous assessments. **[2006]**
- 1.3.2 Manage comorbidities when they are identified; do not wait until the person has lost weight. **[2006]**
- 1.3.3 Offer people who are not yet ready to change the chance to return for further consultations when they are ready to discuss their weight again and willing or able to make lifestyle changes. Give them information on the benefits of losing weight, healthy eating and increased physical activity. **[2006]**
- 1.3.4 Recognise that surprise, anger, denial or disbelief about their health situation may diminish people's ability or willingness to change. Stress that obesity is a clinical term with specific health implications, rather than a question of how people look; this may reduce any negative feelings.

During the consultation:

- Assess the person's view of their weight and the diagnosis, and possible reasons for weight gain.

- Explore eating patterns and physical activity levels.
  - Explore any beliefs about eating, physical activity and weight gain that are unhelpful if the person wants to lose weight.
  - Be aware that people from certain ethnic and socioeconomic backgrounds may be at greater risk of obesity, and may have different beliefs about what is a healthy weight and different attitudes towards weight management.
  - Find out what the person has already tried and how successful this has been, and what they learned from the experience.
  - Assess the person's readiness to adopt changes.
  - Assess the person's confidence in making changes. **[2006, amended 2014]**
- 1.3.5 Give people and their families and/or carers information on the reasons for tests, how the tests are done, and their results and meaning. If necessary, offer another consultation to fully explore the options for treatment or discuss test results. **[2006, amended 2014]**

## Adults

- 1.3.6 Take measurements (see [section 1.2](#)) to determine degree of overweight or obesity and discuss the implications of the person's weight. Then, assess:
- any presenting symptoms
  - any underlying causes of overweight or obesity
  - eating behaviours
  - any comorbidities (for example, type 2 diabetes, hypertension, cardiovascular disease, osteoarthritis, dyslipidaemia and sleep apnoea)
  - any risk factors assessed using lipid profile (preferably done when fasting), blood pressure measurement and HbA1c measurement
  - the person's lifestyle (diet and physical activity)

- any psychosocial distress
- any environmental, social and family factors, including family history of overweight and obesity, and comorbidities
- the person's willingness and motivation to change lifestyle
- the potential of weight loss to improve health
- any psychological problems
- any medical problems and medication
- the role of family and care workers in supporting individuals with learning disabilities to make lifestyle changes.

See also [NICE's guideline on managing overweight and obesity in children and young people](#). **[2006, amended 2014]**

1.3.7 Consider referral to tier 3 services if:

- the underlying causes of overweight or obesity need to be assessed
- the person has complex disease states or needs that cannot be managed adequately in tier 2 (for example, the additional support needs of people with learning disabilities)
- conventional treatment has been unsuccessful
- drug treatment is being considered for a person with a BMI of more than 50 kg/m<sup>2</sup>
- specialist interventions (such as a very-low-calorie diet) may be needed
- surgery is being considered.

For more information on tier 3 services, see [NHS England's report on joined up clinical pathways for obesity](#). **[2006, amended 2014]**

## Children

- 1.3.8 Assessment of comorbidity should be considered for children with a BMI at or above the 98th centile. **[2006]**
- 1.3.9 Take measurements to determine degree of overweight or obesity and raise the issue of weight with the child and family, then assess:
- presenting symptoms and underlying causes of overweight or obesity
  - willingness and motivation to change
  - comorbidities (such as hypertension, hyperinsulinaemia, dyslipidaemia, type 2 diabetes, psychosocial dysfunction and exacerbation of conditions such as asthma)
  - any risk factors assessed using lipid profile (preferably done when fasting), blood pressure measurement and HbA1c measurement
  - psychosocial distress, such as low self-esteem, teasing and bullying (see also [NICE's guideline on managing overweight and obesity in children and young people](#))
  - family history of overweight or obesity and comorbidities
  - the child and family's willingness and motivation to change lifestyle
  - lifestyle (diet and physical activity)
  - environmental, social and family factors that may contribute to overweight or obesity, and the success of treatment
  - growth and pubertal status
  - any medical problems and medication
  - the role of family and care workers in supporting people with learning disabilities to make lifestyle changes. **[2006, amended 2014]**
- 1.3.10 Consider referral to an appropriate specialist for children who are living with overweight or obesity and have significant comorbidities or complex needs (for

example, learning disabilities or other additional support needs). **[2006, amended 2014]**

1.3.11 In tier 3 services, assess associated comorbidities and possible causes for children and young people who are living with overweight or obesity. Use investigations such as:

- blood pressure measurement
- lipid profile, preferably while fasting
- fasting insulin
- fasting glucose levels and oral glucose tolerance test
- liver function
- endocrine function.

Interpret the results of any tests used in the context of how the level of the child's overweight or obesity is, the child's age, history of comorbidities, possible genetic causes and any family history of metabolic disease related to overweight or obesity. **[2006, amended 2014]**

1.3.12 Make arrangements for transitional care for children and young people who are moving from paediatric to adult services. **[2006]**

## 1.4 Lifestyle interventions

### Adults and children

1.4.1 Multicomponent interventions are the treatment of choice. Ensure weight management programmes include behaviour change strategies (see [recommendations 1.5.1 to 1.5.3](#)) to increase people's physical activity levels or decrease inactivity, improve eating behaviour and the quality of the person's diet, and reduce energy intake. **[2006, amended 2014]**

- 1.4.2 When choosing treatments, take into account:
- the person's individual preference and social circumstance, and the experience and outcome of previous treatments (including whether there were any barriers)
  - the person's degree of overweight and obesity or increased health risk based on their waist-to-height ratio (see [recommendations 1.2.11 and 1.2.15](#))
  - any comorbidities. **[2006, amended 2022]**
- 1.4.3 Document the results of any discussion. Keep a copy of the agreed goals and actions (ensure the person also does this) or put this in the person's notes. **[2006, amended 2014]**
- 1.4.4 Offer support depending on the person's needs and be responsive to changes over time. **[2006]**
- 1.4.5 Ensure any healthcare professionals who deliver interventions for weight management have relevant competencies and have had specific training. **[2006, amended 2014]**
- 1.4.6 Provide information in formats and languages that are suited to the person. Use everyday, jargon-free language and explain any technical terms when talking to the person and their family or carers. Take into account the person's:
- age and stage of life
  - gender
  - cultural needs and sensitivities
  - ethnicity
  - social and economic circumstances
  - specific communication needs (for example, because of learning disabilities, physical disabilities or cognitive impairments due to neurological conditions). **[2006, amended 2014]**

1.4.7 Praise successes – however small – at every opportunity to encourage the person through the difficult process of changing established behaviour. **[2006]**

1.4.8 Give people who are living with overweight or obesity, and their families and/or carers, relevant information on:

- being overweight, and obesity in general, including related health risks
- realistic targets for weight loss; for adults, see [NICE's guideline on managing overweight and obesity in adults](#)
- the distinction between losing weight and maintaining weight loss, and the importance of developing skills for both; advise them that the change from losing weight to maintenance typically happens after 6 to 9 months of treatment
- realistic targets for outcomes other than weight loss, such as increased physical activity and healthier eating
- diagnosis and treatment options
- healthy eating in general (more information on healthy eating can be found on the [eat well pages of the NHS website](#))
- medication and side effects
- surgical treatments
- self-care
- voluntary organisations and support groups and how to contact them.

Ensure there is adequate time in the consultation to provide information and answer questions. **[2006, amended 2014]**

1.4.9 If a person (or their family or carers) does not feel this is the right time for them to take action, explain that advice and support will be available in the future whenever they need it. Provide contact details so that the person can get in touch when they are ready. **[2006, amended 2014]**

## Adults

- 1.4.10 Encourage the person's partner or spouse to support any weight management programme. **[2006]**
- 1.4.11 Base the level of intensity of the intervention on the level of risk and the potential to gain health benefits (see [recommendations 1.2.15 and 1.2.16](#)). **[2006]**

## Children

- 1.4.12 Be aware that the aim of weight management programmes for children and young people can vary. The focus may be on either weight maintenance or weight loss, depending on the person's age and stage of growth. **[2006, amended 2014]**
- 1.4.13 Encourage parents of children and young people who are living with overweight or obesity to lose weight if they are also living with overweight or obesity. **[2006]**

# 1.5 Behavioural interventions

## Adults and children

- 1.5.1 Deliver any behavioural intervention with the support of an appropriately trained professional. **[2006]**

## Adults

- 1.5.2 Include the following strategies in behavioural interventions for adults, as appropriate:
- self-monitoring of behaviour and progress
  - stimulus control
  - goal setting

- slowing rate of eating
- ensuring social support
- problem solving
- assertiveness
- cognitive restructuring (modifying thoughts)
- reinforcement of changes
- relapse prevention
- strategies for dealing with weight regain. **[2006]**

## Children

1.5.3 Include the following strategies in behavioural interventions for children, as appropriate:

- stimulus control
- self-monitoring
- goal setting
- rewards for reaching goals
- problem solving.

Give praise to successes and encourage parents to role-model desired behaviours. **[2006, amended 2014]**

## 1.6 Physical activity

### Adults

- 1.6.1 Encourage adults to increase their level of physical activity even if they do not lose weight as a result, because of the other health benefits it can bring (for example, reduced risk of type 2 diabetes and cardiovascular disease). Encourage adults to meet the recommendations in the [UK Chief Medical Officers' physical activity guidelines](#) for weekly activity. **[2006]**
- 1.6.2 Advise that to prevent obesity, most people may need to do 45 to 60 minutes of moderate-intensity activity a day, particularly if they do not reduce their energy intake. Advise people who have been living with obesity and have lost weight that they may need to do 60 to 90 minutes of activity a day to avoid regaining weight. **[2006]**
- 1.6.3 Encourage adults to build up to the recommended activity levels for weight maintenance, using a managed approach with agreed goals.

Recommend types of physical activity, including:

- activities that can be incorporated into everyday life, such as brisk walking, gardening or cycling (see also [NICE's guideline on walking and cycling](#))
- supervised exercise programmes
- other activities, such as swimming, aiming to walk a certain number of steps each day, or stair climbing.

Take into account the person's current physical fitness and ability for all activities. Encourage people to also reduce the amount of time they spend inactive, such as watching television, using a computer or playing video games. **[2006]**

## Children

- 1.6.4 Encourage children and young people to increase their level of physical activity, even if they do not lose weight as a result, because of the other health benefits exercise can bring (for example, reduced risk of type 2 diabetes and cardiovascular disease). Encourage children to meet the recommendations in the [UK Chief Medical Officers' physical activity guidelines](#) for daily activity. **[2006]**
- 1.6.5 Be aware that children who are already living with overweight may need to do more than 60 minutes of activity. **[2006, amended 2014]**
- 1.6.6 Encourage children to reduce inactive behaviours, such as sitting and watching television, using a computer or playing video games. **[2006]**
- 1.6.7 Give children the opportunity and support to do more exercise in their daily lives (for example, walking, cycling, using the stairs and active play; see also [NICE's guideline on walking and cycling](#)). Make the choice of activity with the child and ensure it is appropriate to the child's ability and confidence. **[2006]**
- 1.6.8 Give children the opportunity and support to do more regular, structured physical activity (for example, football, swimming or dancing). Make the choice of activity with the child, and ensure it is appropriate to the child's ability and confidence. **[2006]**

## 1.7 Dietary approaches

### Adults and children

- 1.7.1 Tailor dietary changes to food preferences and allow for a flexible and individual approach to reducing calorie intake. **[2006]**
- 1.7.2 Do not use unduly restrictive and nutritionally unbalanced diets, because they are ineffective in the long term and can be harmful. **[2006, amended 2014]**
- 1.7.3 Encourage people to improve their diet even if they do not lose weight, because

there can be other health benefits. **[2006]**

## Adults

- 1.7.4 The main requirement of a dietary approach to weight loss is that total energy intake should be less than energy expenditure. **[2006]**
- 1.7.5 Diets that have a 600 kcal/day deficit (that is, they contain 600 kcal less than the person needs to stay the same weight) or that reduce calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow up, are recommended for sustainable weight loss. **[2006]**
- 1.7.6 Consider low-calorie diets (800 to 1,600 kcal/day), but be aware these are less likely to be nutritionally complete. **[2006, amended 2014]**
- 1.7.7 Do not routinely use very-low-calorie diets (800 kcal/day or less) to manage obesity. **[2014]**
- 1.7.8 Only consider very-low-calorie diets, as part of a multicomponent weight management strategy, for people who are living with obesity and who have a clinically assessed need to rapidly lose weight (for example, people who need joint replacement surgery or who are seeking fertility services). Ensure that:
- the diet is nutritionally complete
  - the diet is followed for a maximum of 12 weeks (continuously or intermittently)
  - the person following the diet is given ongoing clinical support. **[2014]**
- 1.7.9 Before starting someone on a very-low-calorie diet as part of a multicomponent weight management strategy:
- Consider counselling and assess for eating disorders or other psychopathology to make sure the diet is appropriate for them.
  - Discuss the risks and benefits with them.

- Tell them that this is not a long-term weight management strategy, and that regaining weight may happen and is not because of their own or their clinician's failure.
  - Discuss the reintroduction of food following a liquid diet with them. **[2014]**
- 1.7.10 Provide a long-term multicomponent strategy to help the person maintain their weight after the use of a very-low-calorie diet (see [recommendation 1.4.1](#)). **[2014]**
- 1.7.11 Encourage people to eat a balanced diet in the long term, consistent with other healthy eating advice.
- More information on healthy eating can be found on the [eat well pages of the NHS website](#). **[2006, amended 2014]**

## Children

- 1.7.12 A dietary approach alone is not recommended. It is essential that any dietary recommendations are part of a multicomponent intervention. **[2006]**
- 1.7.13 Any dietary changes should be age appropriate and consistent with healthy eating advice. **[2006]**
- 1.7.14 For children and young people living with overweight or obesity, total energy intake should be below their energy expenditure. Changes should be sustainable. **[2006, amended 2014]**

## 1.8 Pharmacological interventions

### Adults

- 1.8.1 Consider pharmacological treatment (see table 1) only after dietary, exercise and behavioural approaches have been started and evaluated. NICE has not

recommended naltrexone–bupropion (see [NICE's technology appraisal guidance on naltrexone–bupropion for managing overweight and obesity](#)). **[2006, amended 2023]**

- 1.8.2 Consider drug treatment (see table 1) for people who have not reached their target weight loss or have reached a plateau on dietary, activity and behavioural changes. **[2006]**
- 1.8.3 Make the decision to start drug treatments after discussing the potential benefits and limitations with the person, including the mode of action, adverse effects and monitoring requirements, and the potential impact on the person's motivation. Make arrangements for appropriate healthcare professionals to offer information, support and counselling on additional diet, physical activity and behavioural strategies when drug treatment is prescribed. Provide information on patient support programmes. **[2006, amended 2014]**

**Table 1 Medicines recommended by NICE for weight loss in adults**

Medicine	Starting criteria	Stopping criteria
<p>Liraglutide, see <a href="#">NICE's technology appraisal guidance on liraglutide for managing overweight and obesity</a></p>	<p>BMI of:</p> <ul style="list-style-type: none"> <li>• at least 35 kg/m<sup>2</sup> <b>or</b></li> <li>• at least 32.5 kg/m<sup>2</sup> for members of minority ethnic groups known to be at equivalent risk of the consequences of obesity at a lower BMI than the white population</li> </ul> <p><b>and</b></p> <p>Non-diabetic hyperglycaemia (HbA1c level of 42 mmol/mol to 47 mmol/mol [6.0% to 6.4%] or a fasting plasma glucose level of 5.5 mmol/litre to 6.9 mmol/litre)</p> <p><b>and</b></p> <p>High risk of cardiovascular disease based on risk factors such as hypertension and dyslipidaemia</p> <p><b>and</b></p> <p>Prescribe in secondary care by a <a href="#">specialist weight management service</a></p> <p><b>and</b></p> <p>The company provides it according to the <a href="#">commercial arrangement</a>.</p>	<p>–</p>

Medicine	Starting criteria	Stopping criteria
Orlistat	<p>BMI of:</p> <ul style="list-style-type: none"> <li>• 30 kg/m<sup>2</sup> or more <b>or</b></li> <li>• 28 kg/m<sup>2</sup> or more with associated risk factors.</li> </ul> <p>Use with other drugs aimed at weight reduction is not recommended.</p>	<p>Continue beyond 3 months only if the person has lost at least 5% of their initial body weight since starting orlistat (see also <a href="#">recommendation 1.9.6</a> for people with type 2 diabetes).</p>
<p>Semaglutide, see <a href="#">NICE's technology appraisal guidance on semaglutide for managing overweight and obesity</a></p>	<p>BMI of:</p> <ul style="list-style-type: none"> <li>• at least 35.0 kg/m<sup>2</sup> <b>or</b></li> <li>• 30.0 kg/m<sup>2</sup> to 34.9 kg/m<sup>2</sup> and meet the criteria for referral to specialist weight management services in <a href="#">recommendation 1.3.7</a>.</li> </ul> <p>Use lower BMI thresholds (usually reduced by 2.5 kg/m<sup>2</sup>) for people from South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family backgrounds</p> <p><b>and</b></p> <p>At least 1 weight-related comorbidity</p> <p><b>and</b></p> <p>Use within a specialist weight management service.</p>	<p>Consider stopping if less than 5% of the initial weight has been lost after 6 months.</p> <p>Use for a maximum of 2 years.</p>

## Children

- 1.8.4 Drug treatment is not generally recommended for children younger than 12 years. **[2006]**
- 1.8.5 In children younger than 12 years, drug treatment may be used only in exceptional circumstances, if severe comorbidities are present. Prescribing should be started and monitored only in specialist paediatric settings. **[2006, amended 2014]**
- 1.8.6 In children aged 12 years and older, treatment with orlistat is recommended only if physical comorbidities (such as orthopaedic problems or sleep apnoea) or severe psychological comorbidities are present. Treatment should be started in a specialist paediatric setting, by multidisciplinary teams with experience of prescribing in this age group.
- In October 2014, this was an off-label use of orlistat. See [NICE's information on prescribing medicines](#). **[2006, amended 2014]**
- 1.8.7 Do not give orlistat to children for obesity unless prescribed by a multidisciplinary team with expertise in:
- drug monitoring
  - psychological support
  - behavioural interventions
  - interventions to increase physical activity
  - interventions to improve diet. **[2006, amended 2014]**
- 1.8.8 Drug treatment may be continued in primary care, for example with a shared care protocol if local circumstances and/or licensing allow. **[2006, amended 2014]**

## 1.9 Continued prescribing and withdrawal

### Adults and children

- 1.9.1 Pharmacological treatment may be used to maintain weight loss rather than to continue to lose weight. **[2006]**
- 1.9.2 If there is concern about micronutrient intake adequacy, a supplement providing the reference nutrient intake for all vitamins and minerals should be considered, particularly for vulnerable groups such as older people (who may be at risk of malnutrition) and young people (who need vitamins and minerals for growth and development). **[2006]**
- 1.9.3 Offer support to help maintain weight loss to people whose drug treatment is being withdrawn; if they did not reach their target weight, their self-confidence and belief in their ability to make changes may be low. **[2006]**

### Adults

- 1.9.4 Monitor the effect of drug treatment and reinforce lifestyle advice and adherence through regular review. **[2006, amended 2014]**
- 1.9.5 Consider withdrawing drug treatment in people who have not reached weight loss targets (see recommendation 1.9.8 and table 1 for details). **[2006]**
- 1.9.6 Rates of weight loss may be slower in people with type 2 diabetes, so less strict goals than those for people without diabetes may be appropriate. Agree the goals with the person and review them regularly. **[2006]**
- 1.9.7 Only prescribe orlistat as part of an overall plan for managing obesity in adults who meet 1 of the following criteria:
- a BMI of 28 kg/m<sup>2</sup> or more with associated risk factors
  - a BMI of 30 kg/m<sup>2</sup> or more. **[2006]**

- 1.9.8 Continue orlistat therapy beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment (see also recommendation 1.9.6 for advice on targets for people with type 2 diabetes.) **[2006]**
- 1.9.9 Make the decision to use drug treatment for longer than 12 months (usually for weight maintenance) after discussing potential benefits and limitations with the person. **[2006]**
- 1.9.10 The co-prescribing of orlistat with other drugs aimed at weight reduction is not recommended. **[2006]**

## Children

- 1.9.11 If orlistat is prescribed for children, a 6- to 12-month trial is recommended, with regular review to assess effectiveness, adverse effects and adherence.

In October 2014, this was an off-label use of orlistat. See [NICE's information on prescribing medicines](#). **[2006, amended 2014]**

## 1.10 Surgical interventions

### When to refer adults for assessment for bariatric surgery

- 1.10.1 Offer adults a referral for a comprehensive assessment by [specialist weight management services](#) providing multidisciplinary management of obesity to see whether bariatric surgery is suitable for them if they:
- have a BMI of 40 kg/m<sup>2</sup> or more, or between 35 kg/m<sup>2</sup> and 39.9 kg/m<sup>2</sup> with a significant health condition that could be improved if they lost weight (see box 2 for examples) **and**
  - agree to the necessary long-term follow up after surgery (for example, lifelong annual reviews). **[2023]**

- 1.10.2 Consider referral for people of South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family background using a lower BMI threshold (reduced by  $2.5 \text{ kg/m}^2$ ) than in recommendation 1.10.1 to account for the fact that these groups are prone to central adiposity and their cardiometabolic risk occurs at a lower BMI. **[2023]**

**Box 2 Examples of common health conditions that can improve after bariatric surgery**

Some conditions that can improve after bariatric surgery include:

- cardiovascular disease
- hypertension
- idiopathic intracranial hypertension
- non-alcoholic fatty liver disease with or without steatohepatitis
- obstructive sleep apnoea
- type 2 diabetes.

These examples are based on the evidence identified for this guideline and the list is not exhaustive.

## When to offer expedited assessment

- 1.10.3 Offer an expedited assessment for bariatric surgery to people:
- with a BMI of  $35 \text{ kg/m}^2$  or more who have recent-onset (diagnosed within the past 10 years) type 2 diabetes **and**
  - as long as they are also receiving, or will receive, assessment in a specialist weight management service. **[2014]**
- 1.10.4 Consider an expedited assessment for bariatric surgery for people:
- with a BMI of  $30 \text{ kg/m}^2$  to  $34.9 \text{ kg/m}^2$  who have recent-onset (diagnosed within the past 10 years) type 2 diabetes **and**

- who are also receiving, or will receive, assessment in a specialist weight management service. **[2014]**

1.10.5 Consider an expedited assessment for bariatric surgery for people of South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family background using a lower BMI threshold (reduced by 2.5 kg/m<sup>2</sup>) than in recommendation 1.10.4, to account for the fact that these groups are prone to central adiposity and their cardiometabolic risk occurs at a lower BMI. **[2014, amended 2023]**

## **Initial assessment and discussions with the multidisciplinary team**

1.10.6 Ensure the multidisciplinary team within a specialist weight management service includes or has access to health and social care professionals who have expertise in conducting medical, nutritional, psychological and surgical assessments in people living with obesity and are able to assess whether surgery is suitable. **[2023]**

1.10.7 Carry out a comprehensive, multidisciplinary assessment for bariatric surgery based on the person's needs. As part of this, assess:

- the person's medical needs (for example, existing comorbidities)
- their nutritional status (for example, dietary intake, and eating habits and behaviours)
- any psychological needs that, if addressed, would help ensure surgery is suitable and support adherence to postoperative care requirements
- their previous attempts to manage their weight, and any past response to a weight management intervention (such as one provided by a specialist weight management service)
- any other factors that may affect their response after surgery (for example, language barriers, learning disabilities and neurodevelopmental conditions, deprivation and other factors related to health inequalities)

- whether any individual arrangements need to be made before the day of the surgery (for example, if they need additional dietary or psychological support, or support to manage existing or new comorbidities)
- fitness for anaesthesia and surgery. **[2023]**

1.10.8 The hospital specialist or bariatric surgeon should discuss the following with people who are thinking about having bariatric surgery:

- the potential benefits
- plans for conception and pregnancy (if someone is of childbearing age)
- the longer-term implications and requirements of surgery
- the potential risks, including perioperative mortality, and complications.

Include the person's family and carers in the discussion, if appropriate.  
**[2006, amended 2023]**

1.10.9 Choose the surgical intervention jointly with the person, taking into account:

- the severity of obesity and any comorbidities
- the best available evidence on effectiveness and long-term effects
- the facilities and equipment available
- the experience of the surgeon who would perform the operation. **[2006]**

1.10.10 Give the person information on:

- appropriate dietary intake after the bariatric procedure
- monitoring their macronutrient and micronutrient status
- patient support groups
- individualised nutritional supplementation, and sources of support and guidance for long-term weight loss and weight maintenance. **[2006, amended 2023]**

For a short explanation of why the committee made the 2023 recommendations and how they might affect practice, see the [rationale and impact section on surgical interventions](#).

Full details of the evidence and the committee's discussion are in [evidence review C: referral for bariatric surgery](#).

## Preoperative assessment and discussions

- 1.10.11 Carry out a comprehensive preoperative assessment of any psychological or clinical factors that may affect adherence to postoperative care requirements (such as changes to dietary intake, eating habits and taking nutritional supplements) before performing surgery. **[2006, amended 2014]**

## Medicines while waiting for surgery

- 1.10.12 Drug treatments may be used to maintain or reduce weight before surgery for people who have been recommended surgery, if the waiting time is excessive. See the [sections on pharmacological interventions](#) and [continued prescribing and withdrawal](#). **[2006, amended 2023]**

## Qualifications of the weight management multidisciplinary team

- 1.10.13 The surgeon in the multidisciplinary team should have:
- had relevant, supervised training
  - specialist experience in bariatric surgery. **[2006, amended 2014]**
- 1.10.14 Ensure the multidisciplinary team carrying out bariatric surgery can provide:
- preoperative assessment, including a risk-benefit analysis that includes preventing complications of obesity
  - specialist assessment for eating disorders (and, if appropriate, referral or

signposting to specialist eating disorder services)

- information on the different procedures, including potential weight loss and possible risks
- regular postoperative assessment, including specialist dietetic and surgical follow up (see recommendation 1.10.17)
- management of comorbidities
- specialist psychological support before and after surgery (for example, a psychological assessment before surgery and, if appropriate, referral to specialist mental health services either before or after surgery)
- information on plastic surgery (such as apronectomy) if appropriate. **[2006, amended 2023]**

1.10.15 Hospitals undertaking bariatric surgery should ensure there is access to, and staff trained to use, suitable equipment, including but not limited to weighing scales, blood pressure cuffs, theatre tables, walking frames, commodes, hoists, bed frames, pressure-relieving mattresses and seating suitable for people having bariatric surgery. **[2006, amended 2023]**

1.10.16 Only surgeons with extensive experience should undertake revisional surgery (if the first operation has not been effective) in specialist centres because of the higher rate of complications and increased mortality of revision surgery compared with primary surgery. **[2006]**

## Postoperative follow-up care

1.10.17 Offer people who have had bariatric surgery a follow-up care package for a minimum of 2 years within the bariatric service. Include:

- monitoring nutritional intake, including macronutrient and micronutrient status
- monitoring for comorbidities

- medications review
  - individualised dietary and nutritional assessment, advice and support
  - advice and support on physical activity
  - psychological support tailored to the person
  - information about professionally led or peer-support groups. **[2014]**
- 1.10.18 After discharge from follow up by the bariatric surgery service, ensure people are offered at least annual monitoring of nutritional status and appropriate supplementation after bariatric surgery, as part of a shared care model with primary care. **[2014]**

## Audit

- 1.10.19 Arrange a prospective audit so that the outcomes and complications of different procedures, the impact on quality of life and nutritional status, and the effect on comorbidities can be monitored in both the short and the long term. (The [National Bariatric Surgery Registry](#) conducts national audits for agreed outcomes.) **[2006, amended 2014]**
- 1.10.20 The surgeon in the multidisciplinary team should submit data for a national clinical audit scheme such as the National Bariatric Surgery Registry. **[2006, amended 2014]**

## Children

- 1.10.21 Surgical intervention is not generally recommended in children or young people. **[2006]**
- 1.10.22 Bariatric surgery may be considered for young people only in exceptional circumstances, and if they have achieved or nearly achieved physiological maturity. **[2006]**

- 1.10.23 Surgery for obesity should be undertaken only by a multidisciplinary team that can provide paediatric expertise in:
- preoperative assessment, including a risk-benefit analysis that includes preventing complications of obesity
  - specialist assessment for eating disorders (and, if appropriate, referral or signposting to specialist eating disorder services)
  - information on the different procedures, including potential weight loss and possible risks
  - regular postoperative assessment, including specialist dietetic and surgical follow up (see recommendation 1.10.17)
  - management of comorbidities
  - specialist psychological support before and after surgery (for example, a psychological assessment before surgery and, if appropriate, referral to specialist mental health services either before or after surgery)
  - information on plastic surgery (such as apronectomy) if appropriate. **[2006, amended 2023]**
- 1.10.24 Hospitals undertaking paediatric bariatric surgery should ensure there is access to, and staff trained to use, suitable equipment, including scales, theatre tables, Zimmer frames, commodes, hoists, bed frames, pressure-relieving mattresses and seating suitable for children and young people having bariatric surgery. **[2006, amended 2023]**
- 1.10.25 Coordinate surgical care and follow up around the child or young person and their family's needs. Comply with the approaches outlined in the [Department of Health and Social Care's call to action on obesity in England](#). **[2006, amended 2014]**
- 1.10.26 Ensure all young people have had a comprehensive psychological, educational, family and social assessment before undergoing bariatric surgery. **[2006, amended 2014]**
- 1.10.27 Perform a full medical evaluation, including genetic screening or assessment before surgery to exclude rare, treatable causes of obesity. **[2006]**

## 1.11 Follow-up care

- 1.11.1 Offer people who have had bariatric surgery a follow-up care package for a minimum of 2 years within the bariatric service. This should include:
- monitoring nutritional intake (including protein and vitamins) and mineral deficiencies
  - monitoring for comorbidities
  - medication review
  - dietary and nutritional assessment, advice and support
  - physical activity advice and support
  - psychological support tailored to the individual
  - information about professionally led or peer-support groups. **[2014]**
- 1.11.2 After discharge from bariatric surgery service follow up, ensure that all people are offered at least annual monitoring of nutritional status and appropriate supplementation according to need following bariatric surgery, as part of a shared care model of chronic disease management. **[2014]**

## Terms used in this guideline

### Specialist weight management service

A specialist primary, community or secondary care-based multidisciplinary team offering a combination of surgical, dietetic, pharmacological and psychological obesity management interventions, including but not limited to tier 3 and tier 4 services.

# Recommendations for research

The guideline committee has made the following recommendations for research.

## Key recommendations for research

### 1 Surgical referral threshold for people who are unable to receive treatment for other conditions

What is the effectiveness and cost effectiveness of bariatric surgery in achieving weight loss and improving treatment outcomes in people who are unable to receive treatment for other health conditions (such as joint replacement surgery or fertility treatment) because they are living with obesity? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the [rationale section on when to refer adults for bariatric surgery](#).

Full details of the evidence and the committee's discussion are in [evidence review C: referral for bariatric surgery](#).

### 2 Surgical referral threshold for people from minority ethnic family backgrounds

What is the effectiveness and cost effectiveness of bariatric surgery in achieving weight loss and maintaining a healthier weight in adults from minority ethnic family backgrounds who are living with obesity? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the [rationale section on when to refer adults for bariatric surgery](#).

Full details of the evidence and the committee's discussion are in [evidence review C: referral for bariatric surgery](#).

### 3 Measurements for assessing health risks in adults

What are the most accurate and suitable measurements and boundary values to assess the health risks associated with overweight, obesity and central adiposity in adults of different ethnicities, particularly those from Black, Asian and minority ethnic family backgrounds? [2022]

For a short explanation of why the committee made the recommendation for research, see the [rationale section on classifying overweight, obesity and central adiposity in adults](#).

Full details of the evidence and the committee's discussion are in [evidence review A: accuracy of anthropometric measures in assessing health risks associated with overweight and obesity in adults](#).

### 4 Measurements for assessing health risks in children and young people

What are the most accurate and suitable measurements and boundary values to assess the health risk associated with overweight, obesity and central adiposity in children and young people of different ethnicities, particularly those from Black, Asian and minority ethnic family backgrounds? [2022]

For a short explanation of why the committee made the recommendation for research, see the [rationale section on measures of overweight, obesity and central adiposity in children and young people](#).

Full details of the evidence and the committee's discussion are in [evidence review B: accuracy of anthropometric measures in assessing health risks associated with overweight and obesity in children and young people](#).

## Other recommendations for research

See the [update information](#) section for more details.

## **5 Follow-up care after bariatric surgery**

Do postoperative lifestyle intervention programmes (exercise, behavioural or dietary) improve weight loss and weight-loss maintenance following bariatric surgery? [2014]

## **6 Long-term outcomes of bariatric surgery in people with type 2 diabetes**

What is the long-term effect of bariatric surgery on diabetes-related complications and quality of life in people with type 2 diabetes compared with optimal medical treatment? [2014]

## **7 Bariatric surgery in children and young people**

What are the long-term outcomes of bariatric surgery in children and young people living with obesity? [2014]

## **8 Obesity management for people with a condition associated with an increased risk of obesity**

What is the best way to deliver obesity management interventions to people with particular conditions associated with an increased risk of obesity (such as people with a physical disability that limits mobility, a learning disability or enduring mental health difficulties)? [2014]

## **9 Long-term effect of very-low-calorie diets on people with a BMI of 40 kg/m<sup>2</sup> or more**

What are the long-term effects of using very-low-calorie diets versus low-calorie diets on weight and quality of life in patients with a body mass index (BMI) of 40 kg/m<sup>2</sup> or more, including the impact on weight cycling? [2014]

## **10 Comparative risks for different generations of immigrants**

Is the risk of ill health the same for first-, second- and third-generation immigrants from Black, Asian and other minority ethnic groups at the same BMI and waist-to-height ratio thresholds? [2013]

## **11 Single cut-off points**

What are the risks and benefits of developing single-figure cut-off points on BMI and waist-to-height ratio for Black, Asian and other minority ethnic groups to help prevent diabetes and other conditions? [2013]

## **12 Awareness of risk among Black, Asian and other minority ethnic groups**

Are Black, Asian and other minority ethnic groups aware that they are at the same risk of type 2 diabetes and mortality at a lower BMI, compared with the white population? [2013]

## **13 Practitioners and providers' awareness of risk in Black, Asian and other minority ethnic groups**

Are clinicians, practitioners and weight management service providers aware that Black, Asian and other minority ethnic groups are at the same risk of type 2 diabetes and mortality at a lower BMI compared with the white population. If so, do they intervene at lower BMI and waist-to-height ratio thresholds? [2013]

## **14 Lifestyle interventions for Black, Asian and other minority ethnic groups**

How effective and cost effective are lifestyle interventions for people from Black, Asian and other minority ethnic groups at different BMI and waist-to-height ratio thresholds, compared with the general population? [2013]

## Rationale and impact

These sections briefly explain why the committee made the 2022 and 2023 recommendations and how they might affect practice.

## Identifying and assessing overweight, obesity and central adiposity in adults

Recommendations 1.2.2 to 1.2.5 and 1.2.7 to 1.2.16

### Why the committee made the recommendations

#### Taking measurements in adults

Based on their expertise, the committee agreed that a clear benefit of measuring the waist-to-height ratio is that people can easily do it themselves, interpret their results, and seek advice if they are at increased health risk.

Self-measurement may reduce the sense of discomfort or stigma some people may feel from a healthcare professional doing the waist circumference measurement. People can also use resources to help them measure their waist accurately, such as the [NHS BMI healthy weight calculator](#), and videos by [Diabetes UK](#) and the [British Heart Foundation](#).

When a person seeks advice because self-measurement indicates an increased health risk, they may need further assessment (such as for cardiometabolic risk factors) and their waist-to-height ratio may be measured again. The committee were aware that there may be situations when a professional taking a measurement may have a negative effect or be inappropriate because of the stigma attached to it. And some people may not want to be measured because of their religious and cultural beliefs. The committee agreed on the importance of being sensitive to people's needs and recognising when it is not appropriate to measure. The committee noted that sensitivity and stigma will be addressed in a forthcoming update of the guideline.

## Measures of overweight, obesity and central adiposity in adults

The committee looked at evidence from studies on the accuracy of different measures for predicting or identifying health conditions associated with overweight and obesity, including type 2 diabetes and cardiovascular disease. The quality of the evidence was mixed. Most studies included information on how accurate the measures were at predicting or diagnosing the health risks associated with overweight and obesity, in people of different ethnicities. Overall, the studies showed that body mass index (BMI), waist circumference, waist-to-hip ratio and waist-to-height ratio could all accurately predict or identify weight-related conditions. The committee noted that BMI is still a useful practical measure, particularly for defining overweight and obesity. But they emphasised that it needs to be interpreted with caution because it is not a direct measure of central adiposity. The committee highlighted that waist-to-height ratio offers a truer estimate of central adiposity by using waist circumference in the calculation. Based on evidence and their experience, they agreed that using waist-to-height ratio as well as BMI would help give a practical estimate of central adiposity in adults with a BMI under 35 kg/m<sup>2</sup>. This would in turn help professionals assess and predict health risks. But because people with a BMI over 35 kg/m<sup>2</sup> are always likely to have a high waist-to-height ratio, the committee recognised that it may not be a useful addition for predicting health risks in this group.

## Classifying overweight, obesity and central adiposity in adults

BMI is the main measure for defining overweight and obesity, and the committee did not alter the BMI categories for the general population. But, based on their expertise, they agreed it was important to estimate central adiposity when assessing future health risks, including for people whose BMI is in the healthy weight category. The committee also highlighted the need for caution when interpreting BMI in adults with high muscle mass because it may be less accurate in this group.

Age-related changes in the body are not well captured by BMI. The committee agreed that BMI should therefore be interpreted with caution in people aged 65 and over because their functional capacity may be reduced due to conditions such as age-related spinal disorders or sarcopenia. They also recognised that slightly higher BMI in older people can have a protective effect (for example, reduced risk of all-cause mortality) because they are less likely to be experiencing undernutrition. So, it is important for professionals to evaluate the balance of these risks when interpreting BMI.

The committee also highlighted that people from Black, Asian and minority ethnic family backgrounds are prone to central adiposity and have an increased cardiometabolic health

risk at lower BMI thresholds. For example, studies in people of South Asian and Chinese family backgrounds showed an increased risk at a BMI of 21 kg/m<sup>2</sup> to 26 kg/m<sup>2</sup>, whereas people from white family backgrounds showed increased risks at 25 kg/m<sup>2</sup> to 29 kg/m<sup>2</sup>.

There was also some evidence for using lower BMI thresholds for people from Middle Eastern (Arab and Iranian), Black African, Black Caribbean and other Asian (Japanese, Korean and Thai) family backgrounds. For these groups, studies identified an increase in risk at BMI values that ranged from 21 kg/m<sup>2</sup> to 30 kg/m<sup>2</sup>, but most were below 25 kg/m<sup>2</sup>. The committee noted that these lower thresholds are in line with international guidance and are already used in practice to refer people from these family backgrounds to weight management services.

Although NICE found no evidence on the thresholds for obesity classes 2 and 3 in people of these family backgrounds, the committee consensus was that it is generally good practice to reduce the thresholds used for the general population by about 2.5 kg/m<sup>2</sup>. This would mean that the threshold for obesity class 2 would be lowered to roughly 32.5 kg/m<sup>2</sup>, and for class 3 to 37.5 kg/m<sup>2</sup> in these populations. [Public Health England guidance on adult weight management](#) and the [British Obesity and Metabolic Surgery Society guidance on accessing tier 4 services](#) also endorsed reducing the thresholds.

In line with their recommendations for other populations, the committee used the terms overweight and obesity instead of risk levels to describe thresholds in people with a South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family background. They agreed that in their experience there was more stigma attached to talking about risk than overweight or obesity. They noted that terms such as 'high risk' could result in anxiety and overinterpretation of risk more than terms such as 'living with obesity'.

The committee also discussed the accuracy of waist-to-height ratio boundary values in predicting and identifying health risks. The evidence showed that the cut-off from individual studies was generally around 0.5 for all ethnicities and sexes, which was in line with the wider evidence. They agreed that waist-to-height ratio could be used to define central adiposity in adults, and that a range of 0.5 to 0.59 corresponds to increased health risks. The committee noted that a waist-to-height ratio of 0.6 or more indicates a further increase in risk.

The committee agreed that a key benefit of using waist-to-height ratio is that the classification is the same for all ethnicities and sexes. It can also be useful in adults with

high muscle mass, for whom BMI may be less accurate.

The committee also noted the boundary value of 0.5 could be communicated in a simple and memorable way with the message: 'Keep your waist to less than half your height'.

Although there was a large evidence base, the committee noted a lack of evidence on the accuracy of methods for predicting future risks for people of some ethnicities. Few studies were based in the UK, so the evidence might not reflect how accurate different measures might be when used in a UK context. Therefore, the committee highlighted the need for more research on measurements and boundary values for different ethnicities and made a recommendation for research on measurements for assessing health risks in adults.

## Discussing the results

The committee agreed that it is important for healthcare professionals to ask for permission before starting any discussions linked to overweight, obesity and central adiposity.

Based on their experience, the committee stressed the importance of sensitive and positive discussions because the stigma associated with obesity can affect people's mental and physical health. This can lead to further weight gain and make them less likely to engage with healthcare professionals. It is especially important to be sensitive when talking to people with conditions such as eating disorders (such as anorexia nervosa, bulimia and binge eating disorder), or disordered eating (such as restrictive dieting, compulsive eating or skipping meals).

The committee noted existing resources and advice that could help conduct sensitive, person-centred conversations. These include Health Education England's healthier weight competency framework, Obesity UK's language matters, and training courses by the Royal College of General Practitioners (RCGP), World Obesity Federation and European Association for the Study of Obesity (EASO).

The committee did not make specific recommendations on sensitive language and measures to prevent stigma because a forthcoming update of this guideline will address these.

The committee noted it is important for adults to know the long-term health risks and conditions associated with overweight, obesity and central adiposity. These include type 2

diabetes, cardiovascular disease, hypertension, dyslipidaemia, certain cancers, and respiratory, musculoskeletal or other metabolic conditions (such as non-alcoholic fatty liver disease). Knowledge about these may encourage the person to stick to a weight loss strategy. Based on their understanding of practice, the committee stressed the importance of an all-round discussion of the person's individual needs and preferences to reach a shared decision about what level and types of intervention would suit them. This includes taking into account factors such as ethnicity, weight-related comorbidities, socioeconomic status, family medical history and special educational needs and disabilities (SEND). These discussions can also involve giving information about local weight management services and other support services.

Based on their expertise, the committee agreed people with weight-related comorbidities may benefit from a higher level of intervention. They also highlighted groups of people, such as those newly diagnosed with type 2 diabetes and those with BMI over 50, who would benefit more from immediate weight management interventions. Based on their expertise, the committee noted that these groups are often not offered appropriate interventions early enough.

## **How the recommendations might affect practice**

The committee highlighted that encouraging self-measurement is in line with changes in practice over the past 2 years, particularly the increase in carrying out initial assessments by phone. It has already become standard practice to use self-reported measurements such as weight, blood pressure readings and blood sugar levels for conditions such as diabetes.

Using waist-to-height ratio as well as BMI would likely have minimal cost impact because tape measures are already routinely available in NHS settings for measuring waist circumference.

The committee noted that community pharmacies have been involved in taking measurements as well as it being done in general practice. Health Education England's healthier weight competency framework highlights that healthcare professionals involved in identification of overweight and obesity should be able to accurately measure and classify weight status. With the addition of waist-to-height ratio, it is important that training is available so that measurements can be conducted by trained personnel.

Currently, there are no established resources for calculating waist-to-height ratio, but

resources such as the NHS BMI healthy weight calculator can be used to explain how to take waist measurements. Additional training programmes may need to be developed to help healthcare professionals understand central adiposity and conduct waist measurement in a sensitive manner and with care, especially in people with specific conditions such as eating disorders. This will lead to additional training costs. There may also be a cost increase associated with the extra staff time needed to teach people how to measure themselves and calculate waist-to-height ratio. But the committee agreed that these additional costs are unlikely to result in a significant resource impact and will be balanced out by the long-term health improvements such as decreased risk of developing diabetes or cardiovascular disease.

Using lower BMI thresholds in people from Black, Asian and minority ethnic family backgrounds will increase the number of people who are eligible for weight management services. However, this could reduce levels of overweight and obesity and thereby reduce the costs of treating obesity-related conditions for the NHS and wider system, such as social care systems.

There may be challenges in using BMI or waist-to-height ratio in people who have a physical disability, some physical conditions (such as scoliosis) or learning difficulties because people may be unable to get on scales independently or be lifted safely. In such circumstances, reasonable adjustments would be needed for adults, for example using seated or hoist scales, or scales that can be used for wheelchairs (including moulded wheelchairs). Measurements may also need to be modified, for example using sitting height or demi-span (the distance between the mid-point of the sternal notch and the finger roots with the arms outstretched laterally) instead of overall height, meaning specialist assessment may be needed. It may also be challenging to take measurements in people who are housebound because it may not be possible to access equipment such as specialist scales during home visits.

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## **Identifying and assessing overweight, obesity and central adiposity in children and young people**

[Recommendations 1.2.21, 1.2.22, and 1.2.24 to 1.2.29](#)

## Why the committee made the recommendations

### Taking measurements in children and young people

The committee were aware of the need to update advice on sensitivity when taking measurements, remaining mindful and sensitive to children and young people's needs (including cultural and religious beliefs) as well as the needs of their parents and carers, and recognising when it is not appropriate to measure. They did not make any recommendations because this section will be reviewed as part of a forthcoming update of the guideline.

### Measures of overweight, obesity and central adiposity in children and young people

The committee looked at evidence on the accuracy of different measures for predicting or identifying health conditions associated with overweight and obesity, including type 2 diabetes and cardiovascular disease. The quality of the evidence was mixed. Some studies included information on how accurate measures were at predicting or diagnosing the health risks associated with overweight and obesity in children and young people of different ethnicities.

Overall, the committee agreed that the studies showed that BMI, waist circumference and waist-to-height ratio could all be used to accurately predict or identify weight-related conditions when they were adjusted for age and sex. The same was true of waist-to-height ratio when it was not adjusted for age and sex. They discussed that BMI z-score adjusted for sex and age tended to be the most accurate measure for identifying different health conditions, but waist-to-height ratio was often equally accurate and, in some studies, more accurate. (BMI z-score is also known as BMI standard deviations [SDs], which indicate how many units a child's BMI is above or below the average BMI value for their age group and sex.)

Based on the evidence and their clinical expertise, the committee agreed that BMI is a useful practical measure for estimating and defining overweight and obesity. However, they noted that BMI should not be interpreted in the same way for children and young people as for adults. Healthcare professionals should use charts that are specific to children and young people and adjusted for age and sex. The committee also noted that waist-to-height ratio is a truer estimate of central adiposity, which is related to health risks.

The committee agreed that special growth charts may be needed when assessing children and young people with cognitive and physical disabilities, including those with learning disabilities. They noted that growth charts for children and young people with Down's syndrome are available from the Centres for Disease Control and the Royal College of Paediatrics and Child Health.

The committee agreed that the evidence for using waist-to-height ratio as a practical estimate for central adiposity to assess and predict health risk in children and young people was not as good as the evidence for adults. They agreed that it could still be useful as an indication of future health risks. But they stated that more research was needed on the accuracy of different measures and made a [recommendation for research on measurements for assessing health risks in children and young people](#).

## **Classifying overweight, obesity and central adiposity in children and young people**

The committee looked at evidence for different boundary values for BMI and BMI z-scores but these focused on identifying current health conditions rather than defining the degree of overweight and obesity. Based on their expertise, they provided clinical definitions of overweight and obesity using BMI centiles and BMI SDs. These values correspond with those in the Royal College of Paediatrics (RCPCH) and Child Health UK-World Health Organization (WHO) growth charts. The committee agreed that it was important to use clinical judgement when interpreting BMI below the 91st centile, especially because children and young people in the healthy weight category may still have central adiposity.

The committee also noted that there are resources that can help professionals understand how to measure, plot and assess BMI in children and young people. These include educational resources from the RCPCH and the National Child Measurement Programme Operational Guidance, which both give information on how the clinical definitions of BMI link to BMI centiles and SDs.

There was a lack of evidence identified on BMI boundary values for children and young people from different ethnicities. The committee agreed this was an important area for research to investigate whether there are variations in thresholds, as there are in adults, and made a [recommendation for research on measurements for assessing health risks in children and young people](#). The committee noted that although they could not provide different thresholds for BMI, waist-to-height ratio could be used as an indicator of central adiposity regardless of ethnicity and sex.

Studies also suggested that the optimal waist-to-height ratio cut-offs for children and young people ranged from 0.42 to 0.57, with most studies averaging around 0.5. Based on the evidence and their clinical knowledge, the committee agreed the waist-to-height ratio boundary value of 0.5 should be the same for children and young people as for adults.

## Discussing the results

The committee agreed that it is important to ask for permission from children, young people, and their parents or carers (if appropriate) before starting any discussions linked to overweight, obesity or central adiposity. They agreed that professional judgement is needed to ensure discussions are age appropriate and decide whether the child or young person should be involved. They also noted that it was standard practice for healthcare professionals to use Gillick competency to determine the capacity of a child or young person under 16 to consent.

Based on their expertise, the committee stressed the importance of sensitive and positive discussions because the stigma associated with obesity can affect a child or young person's mental and physical health. It is especially important to be sensitive when talking to children and young people with conditions such as eating disorders (such as anorexia nervosa, bulimia and binge eating disorder), or disordered eating (such as restrictive dieting, compulsive eating or skipping meals).

The committee noted existing resources and advice that could help conduct conversations with children and young people in a sensitive and positive way. These include [Health Education England's healthier weight competency framework](#), [Public Health England's let's talk about weight](#) (which highlights a focus on weight maintenance and growing into a healthier weight, rather than weight loss) and [Obesity UK's language matters guide](#). There are also training courses by the Royal College of General Practitioners (RCGP), World Obesity Federation and European Association for the Study of Obesity (EASO).

The committee did not make specific recommendations on sensitive language and measures to prevent stigma because a forthcoming update of this guideline will address these.

## Choosing interventions

Based on their clinical expertise, the committee agreed that tailored interventions were useful for children who are living with overweight or obesity or have increased health risk

based on waist-to-height ratio. They agreed that weight-related comorbidities, ethnicity, socioeconomic status, social complexity (for example, looked-after children and young people), family medical history, mental and emotional health and wellbeing, developmental age, and special educational needs and disabilities (SEND) need to be taken into account when tailoring interventions.

The committee were particularly aware that children and young people with weight-related comorbidities, such as type 2 diabetes, may benefit from a higher level of intervention regardless of their waist-to-height ratio. The committee stressed the importance of working with the child or young person, and their families and carers (if appropriate), to make an informed decision about the treatment or care option that is best for them. As highlighted in resources such as the step-by-step guide produced by Public Health England on conversations about weight, healthcare professionals can also give information about local weight management services and other support services during these discussions.

## How the recommendations might affect practice

Waist-to-height ratio is not routinely measured in practice, so there may be additional costs for the extra staff time involved. But the cost impact should be small because waist measurements are already widely used in primary care, so it would not need much extra time to calculate the ratio.

The committee noted that health visitors and school nurses, as well as general practice, are involved in taking measurements. Health Education England's healthier weight competency framework does highlight that healthcare professionals involved in identification of overweight and obesity should be able to accurately measure and classify weight status in children and young people. With the addition of waist-to-height ratio, it is important that training is available so that measurements can be conducted by trained personnel.

There are no established resources for measuring waist-to-height ratio, but healthcare professionals can use the [NHS BMI healthy weight calculator](#), and videos by organisations such as [Diabetes UK](#) and the [British Heart Foundation](#). These are for adults but can also be useful for older children and young people, families and carers.

There are a few training programmes specifically for managing overweight and obesity in children and young people, such as the ones by the World Obesity Federation, European

Childhood Obesity Group, the Department of Health and Social Care's obesity team and Health Education England. Some of these need to be updated to include measuring waist circumference and interpreting waist-to-height ratio, which might lead to additional training costs. Healthcare professionals may need extra time to teach older children and young people, and their families and carers, how to measure the waist accurately and calculate waist-to-height ratio. However, the committee agreed that additional costs of training and staff time are unlikely to result in a significant resource impact and are justified by the long-term health benefits associated with a reduction in obesity-related conditions.

There may be challenges in using BMI or waist-to-height ratio in children and young people with physical disabilities, some physical conditions (such as scoliosis) or learning difficulties. Reasonable adjustments would also be needed for children and young people using wheelchairs (including moulded wheelchairs) such as using seated or hoist scales, or scales that can be used for wheelchairs. And although there is published guidance on supporting people with learning disabilities in obesity and weight management, there are no validated proxy measurements for height in children and young people (for example, using their sitting height or demi-span to estimate their height). This makes taking measurements difficult in children and young people with physical disabilities or learning difficulties.

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## Surgical interventions

[Recommendations 1.10.1 to 1.10.2 and 1.10.6 to 1.10.7](#)

### Why the committee made the recommendations

#### When to refer adults for bariatric surgery

The committee discussed evidence on bariatric surgery for various subgroups of people with and without obesity-related comorbidities. They agreed that it improved several important outcomes (including weight loss, cardiovascular disease and mortality) for people with a BMI of 40 kg/m<sup>2</sup> or more and for those with a BMI of 35 kg/m<sup>2</sup> or more if they had obesity-related comorbidities. They also agreed that giving examples of common health conditions that could be improved by bariatric surgery would help practitioners

decide whether referral was appropriate for those with a BMI below 40 kg/m<sup>2</sup>. This list was based on the evidence identified for this guideline and is therefore not exhaustive. They agreed that the economic evidence showed that bariatric surgery was cost effective in these groups.

Committee members highlighted that referral to a specialist weight management service for comprehensive assessment for surgery from a weight management multidisciplinary team was important to ensure that the risks associated with the surgery are identified and managed.

The committee discussed whether non-surgical measures should be tried, including interventions in specialist weight management services (referred to as tier 3 services in NICE's 2014 guidance) before assessing people for surgery. They agreed that making people try specific measures before referral for surgery would create an unjustified barrier to effective treatment, and the evidence did not support using surgery only as a last resort. They also noted that tier 3 services are not available in all parts of the country (in 2014 to 2015, only about 21% of the clinical commissioning groups in England included these services), and that information on them was limited. So restricting assessment for surgery to those who have already used a tier 3 service could exacerbate health inequalities.

No evidence was found on the effectiveness of bariatric surgery for weight loss in people who had been refused other treatment because of obesity, such as a kidney transplant, fertility treatment or joint replacement surgery. The committee could not identify a referral criterion for this population so they made a recommendation for research on bariatric surgery in people who are unable to receive treatment for other conditions.

Although no evidence was found on the effectiveness of bariatric surgery in different ethnicities, the committee agreed that, based on their experience, obesity-related comorbidities affected people from South Asian, Chinese, other Asian, Middle Eastern, Black African or African-Caribbean family backgrounds at lower BMI levels. Lowering the BMI thresholds for offering surgery to people in these groups could improve outcomes. The committee also agreed that reducing the BMI threshold by 2.5 kg/m<sup>2</sup> was supported by evidence identified for the recommendations on identifying and assessing overweight, obesity and central adiposity. They noted that this would be in line with guidance developed by other organisations (for example, British Obesity and Metabolic Surgery Society guidance on accessing tier 4 services and joint guidance from the American Society for Metabolic and Bariatric Surgery and International Federation for the Surgery of

Obesity of Metabolic Disorders). However, they also made a recommendation for research on bariatric surgery in people from minority ethnic family backgrounds to confirm the appropriate referral criteria.

## **Initial assessment and discussions with the multidisciplinary team**

Committee members highlighted that although bariatric surgery can be effective for weight loss and improve comorbidities, there are short- and long-term medical, nutritional (for example, deficiencies), surgical and psychological risks and complications that may be associated with the procedure. They noted that another major concern was the lack of service provision and variation in practice, including in the initial assessment before surgery.

Based on these risks and concerns, the committee agreed it was crucial to stress the importance of an initial comprehensive assessment by a multidisciplinary team to determine the level of risk before surgery. And that, to manage the variation in practice, it was important to give health and social care professionals and anyone being referred for assessment information about what to expect during this assessment and the level of support the person will need.

The committee agreed on the importance of comprehensive assessment, including assessing the person's fitness for anaesthesia and surgery, by a multidisciplinary team that has access to or includes people with specialist expertise. Although these specialist assessments were recommended in NICE's 2014 guideline, the committee agreed they were not yet universal practice, so it was useful to restate their importance.

The committee agreed that ideally the multidisciplinary team should have access to or include a physician, surgeon or bariatric surgeon, registered dietitian and specialist psychologist. But they acknowledged that because of variation in commissioning of services there may be differences in the structure of the multidisciplinary team and that this assessment for surgery might currently lie in tier 3 or tier 4 services. The committee also noted that various factors need to be taken into account when carrying out the assessment to ensure that the person's needs are met. For example, if the person has comorbidities, specialist input from other multidisciplinary teams already involved in their care may be needed, or input from a learning disability team or liaison nurse if they have learning disabilities or neurodevelopmental conditions. So they did not recommend specific membership of the team to account for flexibility for local arrangements and individual needs.

The committee agreed that assessing the person's previous weight management attempts and engagement with weight management interventions can help identify which interventions have been successful or unsuccessful in the past and aid discussions about future treatment decisions. This can also allow people to be assessed for surgery even if they have not been able to access appropriate weight management interventions because of a lack of local availability.

The committee noted the importance of taking into account other factors linked with health inequalities that may affect someone's response after surgery, for example, managing their weight after surgery.

Access to expertise in all these areas would allow the team to identify people for whom bariatric surgery is suitable, and identify any arrangements needed before surgery such as managing existing or new comorbidities, improving nutrition or providing psychological support.

## **How the recommendations might affect practice**

Offering assessment for bariatric surgery to people even if they have not tried all non-surgical measures or have not already attended a tier 3 service for intensive weight management support will reduce variation in practice and increase uptake in previously overlooked groups. Considering assessment for bariatric surgery at lower BMI thresholds for people from some ethnicities will reduce inequalities in obesity-related outcomes and improve accessibility of treatment.

These are both likely to increase the number of referrals and surgeries carried out, and therefore increase costs. But basing the offer of surgery on comorbidities as well as BMI will help those who could benefit most, and the cost will be offset by the long-term reduction in obesity-related complications.

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## Context

The 2019 Health Survey for England estimated the prevalence of obesity in adults in England to be 28%, with overweight affecting a further 36%. It estimated the prevalence of obesity in children aged 2 to 15 to be 20% in boys and 13% in girls, with overweight affecting a further 12% of boys and 15% of girls. Government estimates indicate that the current costs of obesity in the UK are £6.1 billion to the NHS and £27 billion to wider society.

Currently, people who would benefit from weight management interventions are identified opportunistically. The lack of active case finding may mean that conditions such as type 2 diabetes are likely to be under-diagnosed in people of Black, Asian and other minority ethnic backgrounds whose risk is increased at a lower body mass index (BMI) and waist circumference.

New evidence identified since this guideline was first published may help to refine weight management programmes that address diet, physical activity and behaviour change, and inform implementation of interventions in specific settings.

Bariatric surgery is a treatment option and is available on the NHS for people who meet certain criteria. During the scoping phase of this guideline, expert feedback indicated that there may be specific subgroups of people who would benefit from bariatric surgery and highlighted that there is new evidence to support this.

This guideline update covers the referral criteria for assessment for bariatric surgery. It updates the previous version of this guideline published in 2022.

Forthcoming updates will cover preventing and managing these conditions. They will produce a single guideline that will partially replace NICE's guideline on weight management before, during and after pregnancy (PH46; only the recommendations that apply before and after pregnancy) and will fully update and replace this guideline and NICE's guidelines on:

- [maintaining a healthy weight](#)
- [managing overweight and obesity in adults](#) and in [children and young people](#)

- obesity: working with local communities
- obesity prevention.

## Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the [NICE topic pages on obesity](#) and [lifestyle and wellbeing](#).

For full details of the evidence and the guideline committee's discussions for the 2023 recommendations in section 1.10, see [evidence review C](#) and the [2018 surveillance review and appendices](#). You can also find information about [how the 2022 and 2023 updates of the guideline were developed](#), including [details of the committee](#).

For full details of the evidence and the guideline committee's discussions for the 2022 recommendations in section 1.2, see [evidence reviews A and B](#) and the [2018 surveillance review and appendices](#).

For full details of the evidence and the guideline committee's discussions for recommendations 1.2.17 to 1.2.19, see the [guideline, expert report and evidence review for NICE guideline PH46](#).

For full details of the evidence and the guideline committee's discussions for all other recommendations, see the [full guideline and appendices](#).

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

## Update information

**July 2023:** We have reviewed the evidence and made new recommendations on bariatric surgery for people living with overweight and obesity. These recommendations are marked **[2023]**.

We have also made some changes without an evidence review. We have:

- clarified the expedited assessment criteria for people with diabetes
- added conception and pregnancy to the points for the surgeon to discuss with people thinking about surgery
- clarified the information to give people about dietary intake and support after surgery
- moved the information on bariatric surgery for people with recent-onset type 2 diabetes into the main bariatric surgery section.

These recommendations are marked **[2006, amended 2023]** or **[2014, amended 2023]**.

All other recommendations last had an evidence review in the year given at the end of the recommendation. In some cases, minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

Recommendations for research marked **[2014]** were developed for the original publication of this guideline and those marked **[2013]** were developed for NICE guideline PH46. They have not been revised as part of the 2022 or 2023 updates of this guideline, but will be reviewed as part of the forthcoming update of all NICE's weight management guidance. See the [full guideline](#) for more details of the 2014 recommendations for research.

**September 2022:** This guideline updates the recommendations on identification and classification of overweight and obesity from this guideline and NICE guideline PH46. Recommendations from other sections of this guideline will be updated at a later stage.

Recommendations are marked **[2022]** if the evidence has been reviewed.

We also made some changes without an evidence review to clarify the information adults should be given about their health risks and to bring the advice about using treatments

into line with the new recommendations on identification. These recommendations are marked **[2006, amended 2022]**.

All other recommendations last had an evidence review in the year given at the end of the recommendation. In some cases, minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

Recommendations for research marked **[2014]** were developed for the original publication of this guideline and those marked **[2013]** were developed for NICE guideline PH46. They have not been revised as part of the 2022 update of this guideline, but will be reviewed as part of the forthcoming update of all NICE's weight management guidance. See the [full guideline](#) for more details of the 2014 recommendations for research.

**November 2014:** This guideline updated and replaced section 1.2 of the [NICE guideline on obesity prevention](#) (published December 2006). We reviewed the evidence in section 1.2 of that guideline and made new recommendations on very-low-calorie diets for adults, bariatric surgery for people with recent-onset type 2 diabetes, and follow up care after bariatric surgery. These recommendations are marked **[2014]**.

We also made some changes without an evidence review to:

- reflect changes to national core standards and service organisation, how blood glucose is measured, the definition of a very-low-calorie diet, use of BMI and z-scores, and current practice to ensure safe prescribing
- better reflect the needs of people with learning disabilities
- improve alignment between recommendations for adults and children
- include cross references to the NICE guideline on waist circumference, the 'Weight Wise' campaign, the NHS eat well webpage, and the National Bariatric Surgery Registry
- remove 'life-threatening' and examples of severe life-threatening comorbidities, because they were considered by the Guideline Development Group to be unhelpful in clinical practice
- remove reference to sibutramine because marketing authorisation has been suspended for this drug

- highlight that the use of orlistat in children and young people is outside its marketing authorisation.

These recommendations are marked **[2006, amended 2014]**.

Recommendations marked **[2006]** last had an evidence review in 2006. In some cases, minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

### Minor changes since publication

**April 2023:** We updated the section on pharmacological interventions to include recommendations from NICE technology appraisal guidance on liraglutide, semaglutide and naltrexone–bupropion.

**February 2021:** We updated the information on amounts of exercise in recommendations 1.6.1 and 1.6.4 in line with the 2019 [UK Chief Medical Officers' physical activity guidelines](#).

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## Accreditation

