National Clinical Guideline Centre

Draft for consultation

Obesity

Identification, assessment and management of overweight and obesity in children, young people and adults

Update of CG43

Appendix C

July 2014

Draft for Consultation

Commissioned by the National Institute for Health and Care Excellence

Royal College of Physicians

The Royal College of Surgeons of England

RCGP Royal College of General Practitioners

Royal College of Nursing

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C.1 Clinical evidence reviews

C.1.1 Very-low-calorie diets (VLCD)

C.1.1.1 Effectiveness

Review question	In people who are overweight or obese, what is the clinical and cost effectiveness of very low calorie diets in reducing weight?
Guideline condition and its definition	Obese and overweight. Definition: Overweight: 25-29.9 BMI (kg/m2) Obese: >30 BMI (kg/m2)
Objectives	To examine the effectiveness of very-low-calorie diets in the treatment of obesity – focusing on adherence and sustainability of weight loss.
Review population	Overweight and obese adults and children
Population	Adults (18 years old and over) Children (over 2 years) (if no data on children or young people, the GDG will consider extrapolating from the adult population for these groups)
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	Intervention: Very-low-calorie diet (≤800 calories per day) – nutritionally complete, meal replacement, minerals, see scoop guidelines 2002 – bench mark for diets, need to comply with this guidance. Also referred to as VLED (very low energy diets). Includes intermittent diets (i.e. just 2 days a week – usually 8 weeks LVCD and then intermittent). Report delivery, intensity of delivery, how and who delivered. Comparison: Standard dietary advice defined as a low-calorie (regular) diet (LCD) - 800-1200 calories per day or 500/800 deficit diet. Need to report and/minus exercise advice/multicomponent psychological support.
Outcomes (& any minimally important differences; default MIDs will be used unless otherwise stated)	Effectiveness: % weight in kg change (from start of study to end of maintenance period) (continuous) CRITICAL Health related quality of life (continuous) CRITICAL Withdrawals (dichotomous) CRITICAL Weight in BMI, change (from start of study to end of maintenance period) - % reduction IMPORTANT Weight change at end of VLCD to end of maintenance period - % kg (continuous) IMPORTANT Weight change at end of diet to end of maintenance period - % BMI (continuous) IMPORTANT Improvement in physical activity (continuous) IMPORTANT
Study design	RCT Systematic Review of RCTS

Review question	In people who are overweight or obese, what is the clinical and cost effectiveness of very low calorie diets in reducing weight?
	(conference abstracts if no evidence)
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	1 year
Other exclusions	Pregnant women Children under 2 years old People of a healthy weight People not on a very-low-calorie diet Non-English language studies Abstracts (excluded from the review, not the search)
Population stratification	None
Reasons for stratification	Intervention is likely to have a different effect on different BMI thresholds
Other stratifications	Type of diet but they will be combined
Sensitivity/other analysis	Combined studies across different types of studies Dichotomous data for time-to-event outcomes (at <1 year, 1year - 2years, 2 years - 3 years)
Subgroup analyses if there is heterogeneity	- T2DM (T2DM; Non-diabetic people); Expect VLCD to have different outcomes in people with T2DM - Ethnicity (White (>80%); Asian (>80%); Black (>80%)); Expect VLCD to have different outcomes in different ethnicities - Diet (Supervised VLCD; Non-supervised VLCD); Expect VLCD to work better in people who have followed a supervised diet People with learning disabilities People osteoarthritis, sleep apnea, giving up smoking
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: None Language: English language only (except studies translated for Cochrane reviews or as directed by the GDG)

C.1.1.2 Safety

Review question	In people who are overweight or obese, what is the safety of very-low-calorie diets when used to reduce weight and maintain weight loss?
Guideline condition and its definition	Obese and overweight. Definition: Overweight: 25-29.9 BMI (kg/m2) Obese: >30 BMI (kg/m2)
Objectives	To examine the safety of very-low-calorie diets in the treatment of obesity
Review population	Overweight and obese adults and children – after a baseline VLCD period
	As above
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be	Intervention: Very-low-calorie diet (800 or below calories per day) – nutritionally complete, meal replacement, minerals, see scoop guidelines 2002 – bench mark for diets, need to comply with this guidance. Also referred to as VLED (very-low-energy diets). Includes intermittent diets (i.e. just 2 days a week – usually 8 weeks LVCD and then intermittent).

Review question	In people who are overweight or obese, what is the safety of very-low-calorie diets when used to reduce weight and maintain weight loss?
compared with each other, unless otherwise stated)	Report delivery, intensity of delivery, how and who delivered. Comparison: Standard dietary advice defined as a low-calorie (regular) diet (LCD) - above 800-1200 calories per day or 500/800 deficit diet. Need to report and/minus exercise advice/multicomponent psychological support.
Outcomes (& any minimally important differences; default MIDs will be used unless otherwise stated)	Disordered eating (dichotomous/continuous) CRITICAL Depression score (continuous) CRITICAL Postural hypotension (dichotomous) CRITICAL Bone density (continuous) IMPORTANT Constipation (dichotomous) IMPORTANT Gallstones (dichotomous) IMPORTANT Gout measured by Increase serum uric acid levels (dichotomous/continuous) IMPORTANT Diarrhoea (dichotomous) IMPORTANT Hypoglycaemia (dichotomous) IMPORTANT
Study design	RCT Systematic Review of RCTs (conference abstracts if no evidence)
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	None
Other exclusions	Pregnant women Children under 2 years old People of a healthy weight People not on a very-low-calorie diet Non-English language studies Abstracts (excluded from the review, not the search)
Population stratification	None
Reasons for stratification	Intervention is likely to have a different effect on different BMI thresholds
Other stratifications	Type of diet but they will be combined
Sensitivity/other analysis	Combined studies across different types of studies Dichotomous data for time-to-event outcomes (at <1 year, 1year - 2years, 2 years - 3 years)
Subgroup analyses if there is heterogeneity	As above
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: None Language: English language only (except studies translated for Cochrane reviews or as directed by the GDG)

C.1.1.3 Maintenance

Review question	What are effective management strategies for maintaining weight loss after very low calorie diets in people who are overweight or obese?
Guideline condition and its definition	Obese and overweight. Definition: Overweight: 25-29.9 BMI (kg/m2) Obese: >30 BMI (kg/m2)
Objectives	To examine the effectiveness of maintaining weight loss after a very-low-calorie diet in the treatment of obesity
Review population	Overweight and obese adults and children
Population	Adults (18 years old and over) Children (over 2 years) (if no data on children or young people, the GDG will consider extrapolating from the adult population for these groups)
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	All patients have a lead-in period on a VLCD (<800 calories) for 6-12 weeks before randomisation. Intervention: maintenance strategy: Anti-obesity drugs Exercise Diet Combinations of above Comparison: Standard dietary advice (control) Placebo Other maintenance strategies
Outcomes (& any minimally important differences; default MIDs will be used unless otherwise stated)	% weight change (kg) from end of VLCD to end of study (Continuous) Health related quality of life (Continuous) % drop outs (Adherence) % weight change (BMI) from end of VLCD to end of study (continuous) % weight change from before VLCD to end of study (kg) % weight change from before VLCD to end of study (BMI) Improvement in physical activity
Study design	RCT Systematic Review of RCTS (conference abstracts if no evidence)
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	1 year
Other exclusions	Pregnant women Children under 2 years old People of a healthy weight People not on a very-low-calorie diet Non-English language studies Abstracts (excluded from the review, not the search)
Population stratification	None

Review question	What are effective management strategies for maintaining weight loss after very low calorie diets in people who are overweight or obese?
Reasons for stratification	Intervention is likely to have a different effect on different BMI thresholds
Other stratifications	Type of diet but they will be combined
Sensitivity/other analysis	Combined studies across different types of studies Dichotomous data for time-to-event outcomes (at <1 year, 1year - 2years, 2 years - 3 years)
Subgroup analyses if there is heterogeneity	- T2DM (T2DM; Non-diabetic people); Expect VLCD to have different outcomes in people with T2DM - Ethnicity (White (>80%); Asian (>80%); Black (>80%)); Expect VLCD to have different outcomes in different ethnicities - Diet (Supervised VLCD; Non-supervised VLCD); Expect VLCD to work better in people who have followed a supervised diet People with learning disabilities People with osteoarthritis, sleep apnea, giving up smoking
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: None Language: English language only (except studies translated for Cochrane reviews or as directed by the GDG)

C.1.2 Bariatric surgery in people with type 2 diabetes

Review question	In people with recent onset type 2 diabetes (T2D) who are also overweight or obese, what is the clinical and cost effectiveness of bariatric surgery for the management of diabetes?
Guideline condition and its definition	Obese and overweight. Definition: Overweight: 25-29.9 BMI (kg/m2) Obese: >30 BMI (kg/m2)
Objectives	Should bariatric surgery be a first line therapy for type 2 diabetes patients who are obese and overweight?
Review population	Type 2 diabetes, new onset (duration less than or equal to 10 years) and obese/overweight
	Adults (19 years old and over) Young people (16-18 years old) Children (2-15 years old) Mixed age (over 2 years old)
	Line of therapy not an inclusion criterion
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	Surgery; Gastric bypass Surgery; Gastric band Surgery; Gastric sleeve Surgery; Duodenal switch Endoscopic; Gastric balloon Endoscopic; Duodenal sleeve Diet and exercise; Diet and exercise general Diet and exercise and GRP1 analogues; Diet and exercise and PYY Diet and exercise and GRP1 analogues; Diet and exercise and incretin
Outcomes	- % weight change (BMI or kg) at 1 year (Continuous) CRITICAL - Improvement (glycaemic control, i.e. HBA1C) at 1 year (Continuous) CRITICAL - Quality of life at 1 year (Continuous) CRITICAL

Review question	In people with recent onset type 2 diabetes (T2D) who are also overweight or obese, what is the clinical and cost effectiveness of bariatric surgery for the management of diabetes?
	- Mortality at 1 year (Dichotomous) IMPORTANT - Weight change (kg) at 1 year (Continuous) IMPORTANT - Remission of T2D at 1 year (Time to event) IMPORTANT - Reduction of diabetic medication (insulin, metformin, SU, TZDs, DP4 inhibitors, GLP1 analogues) (Dichotomous) IMPORTANT
Study design	RCT Systematic Review of RCTs
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	1 year
Other exclusions	Type 1 diabetes Non-diabetic people Pregnant women Weight loss tablets Duration of type 2 diabetes >10 years Children under 2 years old People of healthy weight
Population stratification	40.0 - 49.9 BMI (kg/m2) 35.0 - 39.9 BMI (kg/m2) 30.0 - 34.9 BMI (kg/m2) 25.0 - 29.9 BMI (kg/m2)
Reasons for stratification	Intervention is likely to have a different effect on different BMI thresholds
Other stratifications	Type of surgery but they will be combined
Sensitivity/other analysis	Combine studies across different types of studies
Subgroup analyses if there is heterogeneity	- Sex (All male; All female; Mixed); Expect surgery to work better in women - Diabetes treatment (Insulin; No insulin); Expect surgery to work less well in patients treated with insulin - Ethnicity (White (>80%); Asian (>80%); Black (>80%)); Expect surgery to have different outcomes in different ethnicities - Medical - Dietician (Diet supervised by dietician; Diet not supervised); Expect surgery to work better in people who have completed supervised diet - Medical - VLCD (Very-low-calorie diet; Low-calorie diet); Expect surgery to work better in people who followed a very-low-calorie diet - Surgery (Gastric bypass; Gastric band; Gastric sleeve; Duodenal switch); Expect outcomes to be better in people who have undergone surgery - Exercise (Physical exercise supervised; Advice on physical exercise); Expect outcomes to be better in people who received supervised physical intervention (than advice alone)
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: None Language: English language only (except studies translated for Cochrane reviews or as directed by the GDG)

C.1.3 Follow-up care packages after bariatric surgery

Review question	What is the clinical and cost effectiveness of follow-up care packages after bariatric surgery compared with usual care?
Guideline condition and its definition/method of assessment	Obese and overweight people. Definition – Overweight: 25-29.9 BMI (kg/m2); Obese: >30 BMI (kg/m2)
Objectives	To examine the effectiveness of follow-up care packages
Review population	Adults and young people (post-puberty) who are overweight and obese
Major age categories e.g. adults	As above
Line of therapy	Line of therapy not an inclusion criteria
Interventions and comparators: generic/class; specific/drug	Follow-up care package that includes: Nutritional monitoring and one of the following: - problems associated with excess weight loss - avoiding weight regain - specialist psychological (behavioural/CBT/Cognitive Analytical Therapy (CAT)), educational, and social support (another term used 'shared-care model of chronic disease management') -support for becoming pregnant post-bariatric surgery may also be part of the care package (literature on surgical removal of excess skin [body contouring surgery/brachioplasty/abdominoplasty/mastoplexy]will be extracted from data) Usual care (defined as nutritional care only – not a package)
Outcomes (restrict to 7)	Outcomes % weight loss at end of study (continuous) (in BMI or kg)/% excess weight loss at end of study (continuous) (in BMI or kg) – CRITICAL Development of at least one micronutrient deficiency (ie. iron, selenium, zinc, vitamin A, calcium, vitamin B12, vitamin B1) – CRITICAL Health related quality of life/Obesity related QOL (IQ QOL, OWL QOL) – CRITICAL Reoperation rate IMPORTANT Mortality (time to event, dichotomous) IMPORTANT Reduction in medication use IMPORTANT Psychological well-being IMPORTANT
Study designs	Systematic Reviews of RCTs or RCTs (conference abstracts if no evidence)
Unit of randomisation	Patient
Crossover study	Not permitted
Minimum duration of study	Minimum 1 year, no maximum
Other inclusions	None
Sample size exclusion criteria	None
Other exclusions	Non-English language studies. Abstracts (excluded from the review, not the search).

Review question	What is the clinical and cost effectiveness of follow-up care packages after bariatric surgery compared with usual care?
Population stratification	Young people – puberty onwards People with learning disabilities
Reasons for stratification	Young people are still growing and have different needs after bariatric surgery. People with learning difficulties have difficulty with consent and follow-up and may still eat despite having the procedure so are at a higher risk of complications.
Other stratifications	None
Sensitivity/other analysis	Minimum n=none Data will be meta-analysed if possible Pre-intervention treatment will be considered if reported Minimum length of follow-up = 1 year Time points will be pooled for analysis Continuous outcomes - final values preferred. Change scores and final values will be pooled if required. Time to event outcomes (mortality) will be reported as dichotomous if time to event data not available. Default MIDs will be used unless otherwise stated. If no RCTs for children or young people the GDG will consider extrapolating from adult populations for these groups
Subgroup analyses if there is heterogeneity	Type of surgery Male sex, T2D, African-American ethnicity People with renal problems or Type 1 diabetes Women who become pregnant after surgery Housebound patients People on antipsychotic medications or other medications that cause weight gain
Search criteria	Databases: Medline, Embase, the Cochrane Library Date limits for search: None Language: restrict to English only Search restrictions: None

C.2 Economic evidence reviews

Review question	All questions – health economic evidence
Objectives	To identify economic evaluations relevant to the review questions set out above.
Criteria	• Populations, interventions and comparators must be as specified in the individual review protocols above. • Studies must be of a relevant economic study design (cost–utility analysis, cost–benefit analysis, cost-effectiveness analysis, cost–consequence analysis, comparative cost analysis). • Studies must not be an abstract only, a letter, editorial or commentary, or a review of economic evaluations.[(a)] Unpublished reports will not be considered unless submitted as part of a call for evidence. • Studies must be in English.
Search	An economic study search will be undertaken using population-specific terms and an economic

strategy	study filter – see Appendix F [in Full Guideline].
Review strategy	Each study fulfilling the criteria above will be assessed for applicability and methodological limitations using the NICE economic evaluation checklist which can be found in Appendix G of the NICE guidelines manual (2012).[1] **Inclusion and exclusion criteria** • If a study is rated as both 'Directly applicable' and with 'Minor limitations' then it will be included in the guideline. An economic evidence table will be completed and it will be included in the economic evidence profile. • If a study is rated as either 'Not applicable' or with 'Very serious limitations' then it will usually be excluded from the guideline. If it is excluded then an economic evidence table will not be completed and it will not be included in the economic evidence profile. • If a study is rated as 'Partially applicable', with 'Potentially serious limitations' or both then there is discretion over whether it should be included. **Where there is discretion** The health economist will make a decision based on the relative applicability and quality of the available evidence for that question, in discussion with the GDG if required. The ultimate aim is to include studies that are helpful for decision-making in the context of the guideline and the current NHS setting. If several studies are considered of sufficiently high applicability and methodological quality that they could all be included, then the health economist, in discussion with the GDG if required, may decide to include only the most applicable studies and to selectively exclude the remaining studies. All studies excluded on the basis of applicability or methodological limitations will be listed with explanation as excluded economic studies in Appendix I. The health economist will be guided by the following hierarchies. *Setting:* • UK NHS • OECD countries with predominantly public health insurance systems (for example, France, Germany, Sweden) • OECD countries with predominantly private health insurance systems (for example, USA, Switzerland) • non-OECD settings (always 'Not applicable'). *Economic study type:* • cost–utility analysis • other type of full economic evaluation (cost–benefit analysis, cost-effectiveness analysis, cost–consequence analysis) • comparative cost analysis • non-comparative cost analyses including cost-of-illness studies (always 'Not applicable'). *Year of analysis:* • The more recent the study, the more applicable it is. • Studies that are based on resource use and unit costs from more than [10] years ago will be downgraded in terms of applicability. *Quality and relevance of effectiveness data used in the economic analysis:* • The more closely the effectiveness data used in the economic analysis matches with the outcomes of the studies included in the clinical review the more useful the analysis will be for decision-making in the guideline.

(a) Recent reviews will be ordered although not reviewed. The bibliographies will be checked for relevant studies, which will then be ordered.

1 National Institute for Health and Clinical Excellence. The guidelines manual. London: National Institute for Health and Clinical Excellence; 2012. Available from: http://publications.nice.org.uk/the-guidelines-manual-pmg6/