

Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children

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National Institute for Health and Clinical Excellence
National Collaborating Centre for Primary Care

Sibutramine (Reductil): marketing authorisation suspended

On 21 January 2010, the MHRA announced the suspension of the marketing authorisation for the obesity drug sibutramine (Reductil). This follows a review by the European Medicines Agency which found that the cardiovascular risks of sibutramine outweigh its benefits. Emerging evidence suggests that there is an increased risk of non-fatal heart attacks and strokes with this medicine.

The MHRA advises that:

- Prescribers should not issue any new prescriptions for sibutramine (Reductil) and should review the treatment of patients taking the drug.
- Pharmacists should stop dispensing Reductil and should advise patients to make an appointment to see their doctor at the next convenient time.
- People who are currently taking Reductil should make a routine appointment with their doctor to discuss alternative measures to lose weight, including use of diet and exercise regimens. Patients may stop treatment before their appointment if they wish.

The guideline recommended sibutramine for the treatment of obesity in certain circumstances. These recommendations have now been withdrawn and healthcare professionals should follow the MHRA advice.

CONTENTS [note that each Section is in a separate file]		PAGE
	Foreword	8
	Acknowledgements	12
	Abbreviations and glossary of terms	13
	Guidance Development Group	21
	Registered stakeholder organisations	28
	Working with people to prevent and manage overweight and obesity: the issues	41
	Person-centred care: principles for health professionals	42
	Training	43
Section 1: Executive summary, introduction and methods		
1	Executive summary and recommendations	45
	1.1 Aims of the guidance	45
	1.2 Priority recommendations	46
	1.3 Clinical care pathways	51
	1.4 Public health 'map'	53
	1.5 Links between public health and clinical care	55
	1.6 Public health recommendations	56
	1.7 Clinical recommendations	103
2	Development of the guidance	134
	2.1 Public health and clinical context	134
	2.2 Who is the guidance for?	136
	2.3 Structure of the guidance documentation	136
	2.4 Scope	137
	2.5 Plans for guidance revision	142
3	Obesity	143
	3.1 Introduction	143
	3.2 Prevalence	145
	3.3 Existing service provision	148
	3.4 Key public health audiences and settings	149
	3.5 Key clinical audiences and settings	160
	3.6 Addressing inequalities in health	163
	3.7 Assessment of the evidence base	168
4	Methodology	171
	4.1 Introduction	171
	4.2 The developers	171
	4.3 Developing key questions	174
	4.4 Identifying the evidence	175

CONTENTS [note that each Section is in a separate file]		PAGE
	4.5 Reviewing and grading the evidence	178
	4.6 Developing recommendations	184
	4.7 Relationship between the guidance and technology appraisals	187
	4.8 Relation between the guidance and national service frameworks	187
	4.9 Relation between the guidance and 'Choosing health'	188
	4.10 External review	188
Section 2: Identification and classification		
5	Identification and classification	197
	5.1 A: Clinical	197
	5.2 B: Public health	233
	5.3 Review limitations	240
Section 3: Prevention		
6	Prevention evidence summary: determinants of weight gain and weight maintenance ('energy balance')	250
	6.1 Evidence statements	250
	6.2 Methodology	253
	6.3 Weight outcomes: children	254
	6.4 Weight outcomes: adults	260
	6.5 Sub questions	266
	6.6 Limitations of the review	268
7	Prevention evidence summary: interventions to raise awareness	270
	7.1 Evidence statements	270
	7.2 Methodology	272
	7.3 Weight outcomes	273
	7.4 Diet and activity outcomes	275
	7.5 Knowledge, attitudes and awareness	281
	7.6 Sub questions	283
	7.7 Limitations of the review	285
8	Prevention evidence summary: interventions for pre-school children and family-based interventions ('early years')	287
	8.1 Evidence statements	287
	8.2 Methodology	291
	8.3 Weight outcomes	291
	8.4 Diet and activity outcomes	292
	8.5 Sub questions	294
	8.6 Limitations of the review	295
9	Prevention evidence summary: school-based interventions	296

CONTENTS [note that each Section is in a separate file]		PAGE
	9.1 Evidence statements	296
	9.2 Methodology	299
	9.3 Weight outcomes	300
	9.4 Diet and activity outcomes	304
	9.5 Essential elements of a 'whole-school' approach	313
	9.6 Sub questions	314
	9.7 Limitations of the review	316
10	Prevention evidence summary: workplace interventions	317
	10.1 Evidence statements	317
	10.2 Methodology	321
	10.3 Weight outcomes	322
	10.4 Diet and activity outcomes	323
	10.5 Sub questions	325
	10.6 Limitations of the review	327
11	Prevention evidence summary: interventions led by health professionals (community 1)	328
	11.1 Evidence statements	328
	11.2 Methodology for review	334
	11.3 Weight outcomes	334
	11.4 Diet and activity outcomes	338
	11.5 Sub questions	343
	11.6 Limitations of the review	346
12	Prevention evidence summary: broader community interventions (community 2)	347
	12.1 Evidence statements	347
	12.2 Methodology for review	351
	12.3 Weight outcomes	352
	12.4 Diet and activity outcomes	352
	12.5 Sub questions	357
	12.6 Limitations of the review	363
13	Prevention evidence summary: interventions aimed at black and minority ethnic groups, vulnerable groups and vulnerable life stages ('BMEGs')	365
	13.1 Evidence statements	365
	13.2 Methodology	370
	13.3 Weight outcomes	371
	13.4 Diet and activity outcomes	379
	13.5 Sub questions	386
	13.6 Limitations of the review	390

	CONTENTS [note that each Section is in a separate file]	PAGE
	Section 4: Management of obesity 1	
14	Management of obesity in non clinical settings	419
	14.1 Evidence statements	419
	14.2 Methodology	423
	14.3 Weight outcomes	424
	14.4 Dietary and activity outcomes	434
	14.5 Maintenance of weight loss	436
	14.6 Sub questions	437
	14.7 Review limitations	439
	Section 5a: Management of obesity 2	
15	Management of obesity in clinical settings	445
	15.1 General introduction to clinical management	445
	15.2 Children	445
	15.2.1 Factors to be considered in the clinical assessment of children and adolescents who are overweight or obese	445
	15.2.2 Energy imbalance in children and adolescents	450
	15.2.3 Lifestyle interventions in weight management and other outcomes in children and adolescents	453
	15.2.4 Orlistat in weight loss and other outcomes in children and adolescents	482
	15.2.4b Sibutramine in weight loss and other outcomes in adolescents and children	488
	15.2.5 Surgery for weight loss and other outcomes in adolescents and children	492
	15.2.6 Referral to specialist care for children and adolescents	507
	15.2.7 Harms arising in children and adolescents who undergo weight management/maintenance programme	510
	Section 5b: Management of obesity 2	
	15.3 Adults	525
	15.3.1 Factors to be considered in the clinical assessment of adults who are overweight or obese	525
	15.3.2 Energy imbalance in adults and mature adolescents	530
	15.3.3 Lifestyle interventions (diet, behaviour therapy and physical activity) for weight loss and other outcomes in adults	531
	15.3.4 Pharmacological interventions	609
	15.3.5 Surgery and referral to specialist services	636
	15.3.6 Evidence review on referral to specialist care for adults and mature adolescents	662
	15.3.7 Interventions in a UK clinical setting	664
	15.3.8 Patients' and healthcare professionals' views and attitudes to the management of overweight or obesity	671
	15.3.9 Role of professionally organised therapies in the management of overweight and obesity	678

CONTENTS [note that each Section is in a separate file]		PAGE
	15.3.10 Effectiveness of brief interventions in primary care and other general clinical settings in improving outcomes for people who are overweight and obese	680
Section 6: Health economics		
16	Cost effectiveness of clinical interventions	719
	16.1 Introduction	719
	16.2 Methods	720
	16.3 Cost effectiveness of non-pharmacological interventions	722
	16.4 Cost effectiveness of sibutramine	736
	16.5 Cost effectiveness of orlistat	746
	16.6 Cost effectiveness of surgery	760
17	Cost effectiveness of public health interventions	773
	17.1 Introduction	773
	17.2 Evidence review	774
	17.3 Economic modelling	782
Section 7: Research recommendations		
18	Research recommendations	824
	18.1 Introduction	824
	18.2 Specific research recommendations	824
	18.3 Evaluation and monitoring	828
Appendices [note that these are in separate files]		
	Appendix 1 Scope of work	830
	Appendix 2 Key questions & review parameters	839
	Appendix 3 The effectiveness of public health interventions to identify individuals who would benefit	859
	Appendix 4 Determinants of weight gain and weight maintenance	908
	Appendix 5 Raising awareness of what constitutes a healthy weight range	1052
	Appendix 6 The effectiveness of interventions to prevent weight gain or maintain a healthy weight in children aged between 2 and 5 years	1128
	Appendix 7 School based interventions to prevent obesity	1174
	Appendix 8 Workplace interventions to prevent obesity	1280
	Appendix 9 Community-based interventions to prevent obesity	1349
	Appendix 10 The effectiveness of broader community-based interventions to prevent obesity	1475
	Appendix 11 The effectiveness of interventions to prevent weight gain targeted at black and minority ethnic groups, at vulnerable groups and at individuals at vulnerable life stages	1588

CONTENTS [note that each Section is in a separate file]	PAGE
Appendix 12 Treatment of overweight and obesity in non clinical settings	1715
Appendix 13 Evidence tables	1835
Appendix 14 Excluded studies	1942
Appendix 15 Evidence tables	
Appendix 16 Excluded studies & papers for consideration	
Appendix 17 Summary estimates for interventions	
Appendix 18 Health Economics: Public Health	

Foreword

There is increasing recognition both in the UK and worldwide that there is an “obesity epidemic”. This is supported by research evidence based on analyses of national surveys going back over twenty years. The issue has received much attention recently from politicians, professionals, the media and the public. Changes in lifestyle, work and leisure probably all contribute to the present situation. Estimates suggest that more than 12 million adults and 1 million children in England will be obese by 2010 if no action is taken. Currently most action has been at the individual level, with programmes of diet and exercise, and while these may have some benefit, they have made little impact on halting the rise of obesity at a national level. With so many publications and claims, and with the awareness that often success for the individual is short lived, many find it difficult to know what action is appropriate in the prevention and treatment of obesity. There is significant variation in existing service provision and, in many places, the multicomponent programmes that are required for both prevention and treatment are limited.

This full guidance and the related publications seek to produce the first comprehensive and integrated approach to prevention, maintenance and treatment. It is generally accepted that obesity is one of the major challenges to public health at this time and I hope that these publications will contribute to both informed debate and action.

While as in many areas of public health and health care the evidence is limited, we believe that the initial separate searching of the published papers on public health and clinical care, which yielded a consistency of approach, has helped to strengthen our recommendations. However we are very clear in our recommendations that there is urgent need for well designed, longer term studies with agreed outcomes carried out in normal settings in this country to provide better evidence as to what works in both prevention and treatment.

In producing the recommendations there is always a dilemma between being very prescriptive and being rather general. We have sought to be sufficiently flexible to take account of the diversity of personal life style and circumstances and to ensure that in treatment, there is recognition of clinical judgement, as well as the necessity of an agreed approach by the individual and family.

Our recommendations have been formulated with different audiences in mind: public; professionals and those in responsible positions in the health services, local government, education, partnership organisations, the workplace and the voluntary sector. Just as there is no single or simple approach that will be effective in the treatment of overweight or obesity so, a broad and comprehensive approach is required for wider public health action.

I am most grateful to all those who have contributed positively to the preparation of this guidance during the past 18 months. It has been a pleasure to work with them and it is our hope that these recommendations will provide clear and practical help. In addition to the usual skills of a range of health professionals, those involved in clinical care, and patients, we have had the advice of those in local government, voluntary and community organisations, sports and exercise and the workplace. In this guidance, for the first time, NICE Recommendations are not exclusively aimed at those in the health service.

While obesity is recognised as a priority, there are of course competing priorities, although some of these, such as diabetes and heart disease, are closely linked. However few other problems are causing such widespread concern over their increase and their impact on health and quality of life.

We have sought to produce guidance that will build on the existing services, recognising that further training and staff will be required. The report aims to be ambitious and forward looking. To do otherwise would have been irresponsible with a major health priority, which is continuing to increase in prevalence.

Professor Jim McEwen, Chair of the Guidance Development Groups

Clinical guidance

The last ten years have seen increasing recognition of the importance of obesity in the UK adult population and its association with a range of significant health problems, including type 2 diabetes. There has also been increasing concern about the rise of childhood obesity and the implications of such obesity persisting into adulthood.

As a practising GP, I know that primary care has a crucial role to play in the assessment and management of adults with obesity. In order for primary care health workers to take on this role they need to know what works and require better training and resourcing of management programmes that incorporate dietary advice, physical activity and behavioural change (multicomponent interventions). This clinical guideline offers general practitioners, practice nurses, community dietitians and others a systematic review of the evidence of weight loss interventions, with clear summaries of their effectiveness.

What is striking is that we lack good evidence of the effectiveness of a number of key interventions, particularly in children. But the recommendations themselves are clear and capable of implementation, with a clear message that management should be targeted at those with the highest potential to benefit from weight loss and that drugs should only be used to manage obesity when such multicomponent interventions have been delivered.

This guidance is a significant achievement on two counts. First, it provides integrated clinical and public health guidance on the prevention as well as the management of obesity and the overweight. It is well recognised that the epidemic of obesity cannot simply be addressed through behavioural change at individual level; population based interventions are needed to change the “obesogenic environment” of modern industrialised nations. Second, it is the result of a three year collaboration between the National Collaborating Centre for Primary Care, hosted by the Royal College of General Practitioners, who led on the clinical part of the guidance and the Centre for Public Health Excellence at

NICE, who led on the public health aspects of the guidance. The use of two guidance development subgroups (clinical and prevention), chaired by an experienced public health physician, offers a successful model for developing further integrated primary care/public health guidance for the NHS and other bodies in the future.

We must take every necessary step to tackle obesity. This publication is an important step in that effort and I commend it to clinicians and commissioners.

**Professor Mayur Lakhani FRCGP,
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Abbreviations and glossary of terms

Abbreviations

ABV	alcohol by volume
BMEG	black and minority ethnic group
BMI	body mass index
BT	behaviour therapy or behavioural treatment
CBA	controlled before-and-after study
CC	collaborating centre
CCT	controlled clinical trial
CHD	coronary heart disease
CEA	cost–effectiveness analysis
CI	confidence interval
CPHE	Centre for Public Health Excellence
CUA	cost–utility analysis
CVD	cardiovascular disease
DH	Department of Health
EBQ	evidence-based question
GDG	Guidance Development Group
GP	general practitioner
GPP	good practice point
GRP	Guideline Review Panel
HAD	Health Development Agency
HDL	High-density lipoprotein
HR	hazard ratio
HTA	Health Technology Assessment
ICER	incremental cost-effectiveness ratio
IOTF	International Obesity Taskforce
ITT	intention to treat
LCD	low-calorie diet
LDL	low-density lipoprotein
LSP	local strategic partnership

NCC-PC	National Collaborating Centre for Primary Care
NHMRC	National Health and Medical Research Council (Australia)
NICE	National Institute for Health and Clinical Excellence
NSF	National Service Framework
NSP	non-starch polysaccharides
OR	odds ratio
PCT	Primary Care Trust
PICO	framework incorporating patients, interventions, comparisons, outcomes used for development of evidence-based questions
PSMF	protein-sparing modified fast
QALY	quality-adjusted life year
RCT	randomised controlled trial
RR	relative risk (or risk ratio)
SD	standard deviation
SE	standard error
SEG	Socioeconomic group
SES	Socioeconomic status
SIGN	Scottish Intercollegiate Guidelines Network
VLCD	very-low-calorie diet
WC	waist circumference
WHR	waist-to-hip ratio
WHO	World Health Organization

Glossary of terms

Active play	<p>What children and young people do when they follow their own ideas and interests, in their own way and for their own reasons – such as 'play active games, run about, ride a bike, kick a ball around"</p> <p>(based on Department for Culture Media and Sport definition of play and Health Survey for England 1997 definition of active play)</p>
Active transport / travel	A form of transport that requires physical activity eg walking or cycling.
Adult	<p>For the purposes of this guidance, adult is defined as an individual >18 years*.</p> <p>*However it is not considered helpful to have absolute cut offs for ages of children/young persons since the facilities available for the transition of care from children to adult centres can vary between specialties e.g. mental health, endocrinology.</p>
Adiposity	Body fat
Anthropometry	Measures of the human body
Bariatric surgery	Surgery on the stomach and/or intestines to help the person with extreme obesity lose weight
Behavioural intervention	See term(s) above (behavioural treatment), cognitive behaviour treatment or behaviour therapy. Refers to the use of the common components of behavioural treatment (self-monitoring, goal setting, stimulus control)
Behavioural treatment	Behavioural treatment (or behaviour therapy) draws on the principles of learning theory (stimulus–behaviour contingencies or behaviour–reward contingencies). Consists of assessment (identifying and specifying problem behaviours and the circumstances in which they are elicited), treatment (including setting specific, measurable and modest goals that are continually revised) and monitoring. Behaviour change processes include stimulus control, graded exposure, extinction and reward
Bioelectrical impedance analysis (BIA)	A way to estimate the amount of body weight that is fat and non-fat. Non-fat weight comes from bone, muscle, body water, organs and other body tissues. BIA works by measuring how difficult it is for a harmless electrical current to move through the body. The more fat a person has, the harder it is for electricity to flow through the body. The less fat a person has, the easier it is for electricity to flow

	through the body. By measuring the flow of electricity, one can estimate body fat per cent
Body mass index (BMI)	A simple index of weight for height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m ²) ^{4624} .
Calorie value	The number of Calories (kcal) in any given food or drink. Fat provides 9 calories per gram, alcohol provides 7 Calories per gram, carbohydrates and proteins provides 4 Calories per gram. 1 kcal = 4.2 kilojoules (kJ)
Child	For the purposes of this guidance, child is defined as an individual aged <18 years* *However it is not considered helpful to have absolute cut offs for ages of children/young persons since the facilities available for the transition of care from children to adult centres can vary between specialties e.g. mental health, endocrinology.
Cohort study	A retrospective or prospective follow-up study. Groups of individuals to be followed up are defined on the basis of presence or absence of exposure to a suspected risk factor or intervention. A cohort study can be comparative, in which case two or more groups are selected on the basis of differences in their exposure to the agent of interest
Diet	The habitual food intake of people or animals <i>or</i> A plan of food and drink set down for the loss of weight, or a prescribed plan for medical reasons
Energy-dense food	Food and drinks which provide relatively high amounts of calories per gram, millilitre and/or serving The World Health Organization (2003) states that energy-dense foods 'tend to be processed foods that are high in fat and/or sugar. Low energy dense (or energy dilute) foods such as fruit, legumes, vegetables and whole grain cereals are high in dietary fibre and water.'
Exercise	Planned bouts of physical activity usually pursued for personal health and fitness goals. Exercise is a subset of physical activity, which is planned, structured, repetitive and aimed at improvement or maintenance of any aspect of fitness or health
Fast foods	No specific definition but commonly used slang term for foods which are generally sold in retail outlets and which are high in calories, fat, saturated fat, sugar and/or salt

Fatty foods	<p>Foods high in total fat and/or saturated fat</p> <p>The Food Standards Agency (FSA) provides the following guidance:</p> <p>20 g fat or more per 100 g is a lot of fat 5 g saturates or more per 100 g is a lot 3 g fat or less per 100 g is a little fat 1 g saturates or less per 100 g is a little fat</p>
Healthy diet	<p>A healthy diet contains plenty of fruit and vegetables; is based on starchy foods such as wholegrain bread, pasta and rice; and is low in fat (especially saturated fat), salt and sugar</p> <p><i>Specific dietary recommendations (UK)</i></p> <p>(Population average intakes; apply to children aged 5 years and over)</p> <p>Total fat: maintain at 35% of food energy Saturated fat: reduce to 11% of food energy Added sugar: reduce to 11% of food energy Fibre: increase to 18 g/day Salt: reduce to no more than 6 g/day*</p> <p>Fruit and vegetables: increase consumption of a variety of fruit and vegetables to at least five portions per day</p> <p>*¹The maximum amount of salt recommended for children is less than that for adults – see www.eatwell.gov.uk for specific recommendations.</p>
Healthy weight	A person who has a body mass index (BMI) 18.5 -24.9
Intermediate outcomes	<p>Results or outcomes of action that must occur prior to the final outcome and in order to produce the final outcome. Within the context of this work, relevant changes in diet or activity levels may be considered intermediate outcomes for the assessment of interventions to prevent weight or manage obesity</p>
Life-long learning	<p>A continuum of the learning process that takes place at all levels - formal, non-formal and informal - utilizing various modalities such as distance learning and conventional learning.</p>
Lifestyle activity	<p>Activities that are performed as part of everyday life, such as climbing stairs, walking (for example, to work, school or shops) and cycling. They are normally contrasted with 'programmed' activities such as attending a dance class or fitness training session</p>

Long term	For the purposes of this guidance, long term is considered 1 year or more.
Low-calorie diet	A weight loss diet containing less energy than an individual's energy needs – typically 1000–1500 kilocalories per day. (See reviews for details)
Low-fat diet	A diet where 30% or less of the total daily energy is derived from fat. (See reviews for details)
MET ('metabolic equivalent')	1 MET = a person's metabolic rate (rate of energy expenditure) when at rest. MET values are assigned to activities to denote their intensity and are given in multiples of resting metabolic rate. For example, walking elicits an intensity of 3–6 METs, depending on how brisk the walk is, and more strenuous activity such as running would have an intensity of 7–10 METs
Multicomponent intervention	An intervention that aims to address a range of factors which may influence the outcome measure of interest. Sometimes referred to as 'multifaceted'
Observational study	An epidemiological study that does not involve any intervention, experimental or otherwise. Nature is allowed to take its course with changes in one characteristic being studied in relation to changes in other characteristics
Physical activity	<p>The full range of human movement, from competitive sport and exercise to active hobbies, walking, cycling or activities of daily living. Physical activity varies by:</p> <p>Volume or quantity (total quantity of physical activity over a specified period, usually expressed as kcal or METs per day or week)</p> <p>Frequency of participation, typically expressed as number of sessions per day or week</p> <p>Intensity, usually expressed as light, moderate or vigorous. Commonly used approximations are: light intensity = less than 4 METs, for example, strolling; moderate = 4 – 6 METs, for example, brisk walking, vigorous = 7+ METs for example, running</p> <p>Duration – time spend on a single bout of activity</p> <p>Type or mode – qualitative descriptor such as brisk walking, dancing or weight training</p>
Physical literacy	Motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level, throughout life.

Protein-sparing modified fast diet	A diet which is relatively high in protein (0.8–1.5 g/kg of ideal body weight (IBW) per day), low fat and low carbohydrates. It is hypocaloric and generally contains fewer than 800 kilocalories per day. It contains supplements to meet the dietary reference values for vitamins and minerals. Often recommended only for short-term use in individuals who are obese
Psychosocial	Involving aspects of social and psychological behaviour: <i>a child's psychosocial development</i>
Quasi-experimental study	A study in which some subjects receive an experimental prevention or therapeutic product or intervention and are compared with subjects who do not, but allocation to each of the groups is not random
Randomised controlled trial (RCT)	A comparative study in which participants are randomly allocated to intervention and control groups and followed up to examine differences in outcomes between the groups
Red food	From Epstein and coworkers' traffic light diet. Consists of high in calories, low in nutrient density foods
Revisional surgery	Bariatric procedure performed to correct or modify a previous bariatric procedure
Short term	For the recommendations in this guidance, short term is defined as less than one year.
Skinfold thickness	A measure of the amount of fat under the skin; the measurement is made with a calliper. Measurements at several sites are normally required as the per cent of fat at each site varies with age, sex and ethnicity. Skinfold measurements are usually taken at the triceps, subscapular and supra-iliac sites
Snack	No specific definition. Foods consumed between meals or instead of a main meal
Social marketing	The application of commercial marketing technologies to the analysis, planning, execution, and evaluation of programmes designed to influence the voluntary behaviour of target audiences to improve their personal welfare and that of their society ¹
Sugary foods and drinks	Food and drinks high in added sugars. The FSA provides the following guidance: 10 g sugar or more per 100 g is A LOT of sugar 2 g sugar or less per 100 g is A LITTLE sugar
Traffic light diet	This is a calorie-based food-exchange system created by

	<p>Epstein and coworkers. Foods are divided into five groups (fruits and vegetables, grains, proteins, dairy and other foods), and the foods in each group are colour coded according to nutrient density: green for 'go', yellow for 'eat with care', and red for 'stop'. Green foods are foods containing less than 20 calories per serving, yellow foods are the staple of the diet and provide most of the basic nutrition and red foods are those foods high in fat and simple carbohydrates. All sweets and sugared beverages are classified as red foods. Families are then instructed to count calories and cannot have more than four red foods a week</p>
Travel plan	<p>Department for Transport definition:</p> <p>A travel plan is a package of measures produced by employers to encourage staff to use alternatives to single-occupancy car use. Such a plan could include: car sharing schemes; a commitment to improve cycling facilities; a dedicated bus service or restricted car parking allocations. It might also promote flexible working practices such as remote access and video conferencing</p>
Very-low-calorie diet (VLCD)	<p>Diets generally providing between 400 calories and 800 calories per day (often 400–500 calories). (See reviews for details)</p>
Vulnerable groups	<p>Populations who face a greater than average risk of weight gain due to a range of factors largely beyond their control. Some of these factors may be inherent, while others may relate to the social, economic and environmental circumstances in which they live.</p>
Waist-to-hip ratio	<p>Waist circumference (cm) divided by hip circumference (cm). Provides a proxy measure of central distribution of fat (intra-abdominal fat)</p>

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Registered stakeholder organisations

The list below includes all registered stakeholders to date. In the final version this list will be amended to stakeholder organisations who commented on the scope and/or consultation.

Abbott Laboratories Ltd

Action on Pre-Eclampsia

Age Concern Cymru

Aintree Hospitals NHS Trust

All Wales Dietetic Advisory Committee

All Wales Senior Nurses Advisory Group (Mental Health)

Amgen

Ashfield and Mansfield District Primary Care Trusts

Ashford and St Peter's Hospital NHS Trust

Association for Continence Advice

Association for Respiratory Technology and Physiology

Association for the Study of Obesity

Association of Breastfeeding Mothers

Association of British Clinical Diabetologists

Association of Clinical Biochemists, The

Association of Directors of Social Services (ADSS) – Southampton

Association of Endoscopic Surgeons of Great Britain and Ireland

FINAL VERSION

Association of Surgeons of Great Britain and Ireland

Association of the British Pharmaceuticals Industry (ABPI)

Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland
(AUGIS)

Atkins Nutritional Inc

Back country cardiac network

Barnet Primary Care Trust

Barnsley Primary Care Trust

Bedfordshire and Hertfordshire NHS Strategic Health Authority

Big Lottery Fund

Bolton Salford and Trafford Mental Health

Bradford South and West Primary Care Trust

Bristol University

British Association for Behavioural and Cognitive Psychotherapies (BABCP)

British Association for Counselling and Psychotherapy

British Association for Parenteral and Enteral Nutrition (BAPEN)

British Association of Plastic Surgeons

British Association of Sport and Exercise Sciences

British Dietetic Association

British Geriatrics Society

FINAL VERSION

British Heart Foundation

British Lymphology Society

British National Formulary (BNF)

British Nutrition Foundation

British Obesity Surgery Patient Association

British Obesity Surgery Society

British Psychological Society, The

British Society for Paediatric Endocrinology and Diabetes (BSPED)

Cambridge City and South Cambridgeshire Primary Care Trust

Cambridge Manufacturing Co Ltd

Cambridge Neurotechnology

Cancer Research UK

CASPE (Clinical Accountability, Service Planning and Evaluation)

CEMACH (Confidential Enquiry into Maternal and Child Health)

Central Council of Physical Recreation (CCPR)

Centre for Health Services Studies

Chartered Society of Physiotherapy, The

Cheshire and Wirral Partnership NHS Trust

Child Growth Foundation

Chorley and South Ribble Primary Care Trust

FINAL VERSION

CIS'ters (Childhood Incest Survivors)

City and Hackney Teaching Primary Care Trust

City Hospitals Sunderland NHS Trust

College of Occupational Therapists

Community Practitioners' and Health Visitors' Association

Confederation of Indian Organisations UK

Consumers for Health Choice

Co-operative Pharmacy Association

Cornwall Partnership Trust

Counselling and Psychotherapy Trust

Counsellors and Psychotherapists in Primary Care

Counterweight Programme, The

Craven Harrogate and Rural District Primary Care Trust

Croydon Primary Care Trust

Cumbria and Lancashire Strategic Health Authority

Cyberonics

Department for Education and Skills

Department of Academic Psychiatry – Guy's

Department of Health

Depression Alliance

FINAL VERSION

Devon Partnership NHS Trust

Diabetes UK

Diennet Ltd

Dietitians working in Obesity Management (UK)

Doncaster East Primary Care Trust

East and North Hertfordshire NHS Trust

East Hampshire Primary Care Trust

East Sussex Hospitals NHS Trust

Eating Disorders Association, The

Eli Lilly and Company Ltd

English Nature

Faculty of Dental Surgery

Faculty of Public Health

Federation of Bakers

Food Advertising Unit

Food and Drink Federation

Food Commission, The

Food Standards Agency

GeneWatch UK

Green Machine, The

FINAL VERSION

Hampshire Partnership NHS Trust

Healthcare Commission

Healthier Weight Centre, The

Health Promotion Agency for Northern Ireland

Heart of England NHS Foundation Trust

Heart of Mersey

Heart UK

Heartsave

Hertfordshire Partnership NHS Trust

Hyperlipidaemia Education and Research Trust (HEART-UK) – 2nd contact

Immogenics Limited

Inamed Corporation

Independent Healthcare Forum

Infant and Dietetic Foods Association

Institute of Sport and Recreation Management

International Obesity Taskforce of the International Association for the Study of Obesity

International Size Acceptance Association

Islington Primary Care Trust

Janssen-Cilag Ltd

FINAL VERSION

Johnson & Johnson Medical

KCI Medical Ltd UK

King's College Hospital NHS Trust

Kingston Primary Care Trust

Knowsley Primary Care Trust

L'Arche UK

Leeds North East Primary Care Trust

Leeds Teaching Hospitals NHS Trust

LighterLife

Liverpool John Moores University

Luton and Dunstable Hospital NHS Trust

Medical Support Systems Limited

Medicines and Healthcare Products Regulatory Agency (MHRA)

Medtronic Europe Sarl

MEND Central Ltd

Merck Sharp & Dohme Ltd

Merton Child and Adolescent Mental Health Service

Mid Staffordshire General Hospitals NHS Trust

Mid Sussex Primary Care Trust

Move4Health

FINAL VERSION

MRC Human Nutrition Research

National Association of British and Irish Millers

National Audit Office

National Centre for Eating Disorders

National Collaborating Centre for Acute Care

National Collaborating Centre for Cancer

National Collaborating Centre for Chronic Conditions

National Collaborating Centre for Mental Health

National Collaborating Centre for Nursing and Supportive Care

National Collaborating Centre for Women and Children's Health

National Council for Disabled People, Black, Minority and Ethnic Community

National Healthy School Standard

National Heart Forum (UK)

National Institute for Mental Health in England (NIMHE)

National Nurse Consultants in Child and Adolescent Mental Health Service forum

National Obesity Forum

National Patient Safety Agency

National Public Health Service – Wales

National Youth Advocacy Service

NCH – The Children's Charity

FINAL VERSION

Nestle Clinical Nutrition

Newcastle Primary Care Trust

Newcastle-under-Lyme Primary Care Trust

Newcastle upon Tyne Hospitals NHS Trust

NHS Direct

NHS Health and Social Care Information Centre

NHS Quality Improvement Scotland

North Central London Strategic Health Authority

North Glamorgan NHS Trust – Merthyr Tydfil

North Tees and Hartlepool NHS Trust

North West London Hospitals NHS Trust

Nottingham City Primary Care Trust

Nutmeg UK Ltd

Nutrition Society

Obesity Management Association

Oxfordshire Mental Health Care NHS Trust

Overweight and Obesity Organization, The

Patient and Public Involvement Programme for NICE

PERIGON (formerly The NHS Modernisation Agency)

Pfizer Ltd

FINAL VERSION

Plymouth Hospitals NHS Trust

Powys Local Health Board

Primary Care Cardiovascular Society

Primary Care Rheumatology Society

Princess Alexandra Hospital NHS Trust

Proprietary Association of Great Britain (PAGB)

Queen Victoria Hospital NHS Foundation Trust

Reckitt Benckiser Healthcare (UK) Ltd

Roche Products Limited

Rotherham General Hospitals NHS Trust

Royal Brompton and Harefield NHS Trust

Royal College of Anaesthetists

Royal College of General Practitioners

Royal College of General Practitioners Wales

Royal College of Midwives

Royal College of Nursing

Royal College of Paediatrics and Child Health

Royal College of Pathologists

Royal College of Physicians of Edinburgh

Royal College of Physicians of London

FINAL VERSION

Royal College of Psychiatrists

Royal Cornwall Hospitals Trust and Peninsula Medical School

Royal Liverpool Children's NHS Trust

Royal Pharmaceutical Society of Great Britain

Royal Society of Medicine

Royal United Hospital Bath NHS Trust

Salford Primary Care Trust

Sanofi-Aventis

Scottish Intercollegiate Guidelines Network (SIGN)

Sheffield Children's Hospital NHS Trust

Sheffield South West Primary Care Trust

Sheffield Teaching Hospitals NHS Trust

Slender Thoughts

Slim-Fast Foods Ltd

Slimming World

Society for Academic Primary Care

Society for Endocrinology

South Asian Health Foundation

South East Sheffield Primary Care Trust

South West London Strategic Health Authority

FINAL VERSION

South Yorkshire Strategic Health Authority

Sport England

St George's Healthcare NHS Trust

Stroke Association, The

Sure Start Ashfield

Sure Start Tamworth

Sustain: The alliance for better food and farming

Sustrans

Sutton and Merton Primary Care Trust

Tanita UK Ltd

Thames Valley Strategic Health Authority

Tissue Viability Society (UK)

TOAST (The Obesity Awareness and Solutions Trust)

University College London – Cancer Research UK Health Behaviour Unit

UK National Screening Committee

UK Public Health Association

University College London NHS Trust

University of Leeds

Vale of Aylesbury Primary Care Trust

Walsall Primary Care Trust

FINAL VERSION

Wareney Primary Care Trust

Weight Concern

Weight Loss Surgery Information and Support

WeightWatchers UK

Welsh Assembly Government

West Midlands Specialised Services Agency

West Norfolk Primary Care Trust

West of Cornwall Primary Care Trust

West Hertfordshire Hospitals Trust

World Cancer Research Fund International

Wyre Forest Primary Care Trust

Working with people to prevent and manage overweight and obesity: the issues

Preventing and managing overweight and obesity are complex problems, with no easy answers. This guidance offers practical recommendations based on the evidence. But staff working directly with the public also need to be aware of the many factors that could be affecting a person's ability to stay at a healthy weight or succeed in losing weight.

- People choose whether or not to change their lifestyle or agree to treatment. Assessing their readiness to make changes affects decisions on when or how to offer any intervention.
- Barriers to lifestyle change should be explored. Possible barriers include:
 - lack of knowledge about buying and cooking food, and how diet and exercise affect health
 - the cost and availability of healthy foods and opportunities for exercise
 - safety concerns, for example about cycling
 - lack of time
 - personal tastes
 - the views of family and community members
 - low levels of fitness, or disabilities
 - low self-esteem and lack of assertiveness.
- Advice needs to be tailored for different groups. This is particularly important for people from black and minority ethnic groups, vulnerable groups (such as those on low incomes) and people at life stages with increased risk for weight gain (such as during and after pregnancy, at the menopause or when stopping smoking).

Working with children and young adults

- Treating children for overweight or obesity may stigmatise them and put them at risk of bullying, which in turn can aggravate problem eating. Confidentiality and building self-esteem are particularly important if help is offered at school.

- Interventions to help children eat a healthy diet and be physically active should develop a positive body image and build self-esteem.

Person-centred care: principles for health professionals

When working with people to prevent or manage overweight and obesity, health professionals should follow the usual principles of person-centred care.

Advice, treatment and care should take into account people's needs and preferences. People should have the opportunity to make informed decisions about their care and treatment, in partnership with their health professionals.

Good communication between health professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Advice, treatment and care, and the information patients are given about it, should be non-discriminatory and culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

For older children who are overweight or obese, a balance needs to be found between the importance of involving parents and the right of the child to be cared for independently.

If a person does not have the capacity to make decisions, health professionals should follow the Department of Health guidance – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). From April 2007 healthcare professionals will need to follow a code of practice accompanying the Mental Capacity Act (summary available from www.dca.gov.uk/menincap/bill-summary.htm)

Training

Staff who advise people on diet, weight and activity – both inside and outside the NHS – need appropriate training, experience and enthusiasm to motivate people to change. Some will need general training (for example, in health promotion), while those who provide interventions for obesity (such as dietary treatment and physical training) will need more specialised training. In the recommendations, the term ‘specific’ is used if the training will be in addition to staff’s basic training. The term ‘relevant’ is used for training that could be part of basic professional training or in addition to it.

Section 1: Executive summary, introduction and methods

1 Executive summary and recommendations

1.1 *Aims of the guidance*

This is the first national guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children in England and Wales. The guidance aims to:

- stem the rising prevalence of obesity and diseases associated with it
- increase the effectiveness of interventions to prevent overweight and obesity
- improve the care provided to adults and children with obesity, particularly in primary care.

The recommendations are based on the best available evidence of effectiveness, including cost effectiveness. They include recommendations on the clinical management of overweight and obesity in the NHS, and advice on the prevention of overweight and obesity that applies in both NHS and non-NHS settings.

The guidance supports the implementation of the 'Choosing health' White Paper in England, 'Designed for life' in Wales, the revised GP contract and the existing national service frameworks (NSFs). It also supports the joint Department of Health, Department for Education and Skills and Department for Culture, Media and Sport target to halt the rise in obesity among children under 11 by 2010, and similar initiatives in Wales.

Rationale for integrated clinical and public health guidance

Public health and clinical audiences share the same need for evidence-based, cost-effective solutions to the challenges in their day-to-day practice, as well as to inform policies and strategies to improve health. Complementary clinical and public health guidance are essential to address the hazy divisions between prevention and management of obesity.

The 2004 Wanless report 'Securing good health for the whole population' stressed that a substantial change will be needed to produce the reductions in

preventable diseases such as obesity that will lead to the greatest reductions in future healthcare costs. In addition to recommending a more effective delivery framework for health services providers, the report proposed an enhanced role for schools, local authorities and other public sector agencies, employers, and private and voluntary sector providers in developing opportunities for people to secure better health.

It is unlikely that the problem of obesity can be addressed through primary care management alone. More than half the adult population are overweight or obese and a large proportion will need help with weight management. Although there is no simple solution, the most effective strategies for prevention and management share similar approaches. The clinical management of obesity cannot be viewed in isolation from the environment in which people live.

1.2 Key priorities for implementation

The prevention and management of obesity should be a priority for all, because of the considerable health benefits of maintaining a healthy weight and the health risks associated with overweight and obesity.

Public health

NHS

- Managers and health professionals in all primary care settings should ensure that preventing and managing obesity is a priority, at both strategic and delivery levels. Dedicated resources should be allocated for action.

Local authorities and partners

- Local authorities should work with local partners, such as industry and voluntary organisations, to create and manage more safe spaces for incidental and planned physical activity, addressing as a priority any concerns about safety, crime and inclusion, by:

- providing facilities and schemes such as cycling and walking routes, cycle parking, area maps and safe play areas
- making streets cleaner and safer, through measures such as traffic calming, congestion charging, pedestrian crossings, cycle routes, lighting and walking schemes
- ensuring buildings and spaces are designed to encourage people to be more physically active (for example, through positioning and signing of stairs, entrances and walkways)
- considering in particular people who require tailored information and support, especially inactive, vulnerable groups.

Early years settings

- Nurseries and other childcare facilities should:
 - minimise sedentary activities during play time, and provide regular opportunities for enjoyable active play and structured physical activity sessions
 - implement Department for Education and Skills, Food Standards Agency and Caroline Walker Trust* guidance on food procurement and healthy catering.

Schools

- Head teachers and chairs of governors, in collaboration with parents and pupils, should assess the whole school environment and ensure that the ethos of all school policies helps children and young people to maintain a healthy weight, eat a healthy diet and be physically active, in line with existing standards and guidance. This includes policies relating to building layout and recreational spaces, catering (including vending machines) and the food and drink children bring into school, the taught curriculum (including PE), school

*see www.cwt.org.uk

travel plans and provision for cycling, and policies relating to the National Healthy Schools Programme and extended schools.

Workplaces

- Workplaces should provide opportunities for staff to eat a healthy diet and be physically active, through:
 - active and continuous promotion of healthy choices in restaurants, hospitality, vending machines and shops for staff and clients, in line with existing Food Standards Agency guidance
 - working practices and policies, such as active travel policies for staff and visitors
 - a supportive physical environment, such as improvements to stairwells and providing showers and secure cycle parking
 - recreational opportunities, such as supporting out-of-hours social activities, lunchtime walks and use of local leisure facilities.

Self-help, commercial and community settings

- Primary care organisations and local authorities should recommend to patients, or consider endorsing, self-help, commercial and community weight management programmes only if they follow best practice (see recommendation 1 in section 1.6.9.2 for details of best practice standards).

Clinical care

Children and adults

- Multicomponent interventions are the treatment of choice. Weight management programmes should include behaviour change strategies 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.

Children

- Interventions for childhood overweight and obesity should address lifestyle within the family and in social settings.
- Body mass index (BMI) (adjusted for age and gender) is recommended as a practical estimate of overweight in children and young people, but needs to be interpreted with caution because it is not a direct measure of adiposity.
- Referral to an appropriate specialist should be considered for children who are overweight or obese and have significant comorbidity or complex needs (for example, learning or educational difficulties).

Adults

The decision to start drug treatment, and the choice of drug, should be made after discussing with the patient the potential benefits and limitations, including the mode of action, adverse effects and monitoring requirements and their potential impact on the patient's motivation. When drug treatment is prescribed, arrangements should be made for appropriate health professionals to offer information, support and counselling on additional diet, physical activity and behavioural strategies. Information about patient support programmes should also be provided.

Bariatric surgery is recommended as a treatment option for adults with obesity if all of the following criteria are fulfilled:

- they have a BMI of 40 kg/m² or more, or between 35 kg/m² and 40 kg/m² and other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight
- all appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least 6 months
- the person has been receiving or will receive intensive management in a specialist obesity service
- the person is generally fit for anaesthesia and surgery
- the person commits to the need for long-term follow-up

Bariatric surgery is also recommended as a first-line option (instead of lifestyle interventions or drug treatment) for adults with a BMI of more than 50 kg/m² in whom surgical intervention is considered appropriate.

1.3 Clinical care pathways

Figure 1.1 Clinical care pathway for children (see also the NICE NHS Quick Reference Guide)

(BMI, body mass index; HCP, healthcare professional)

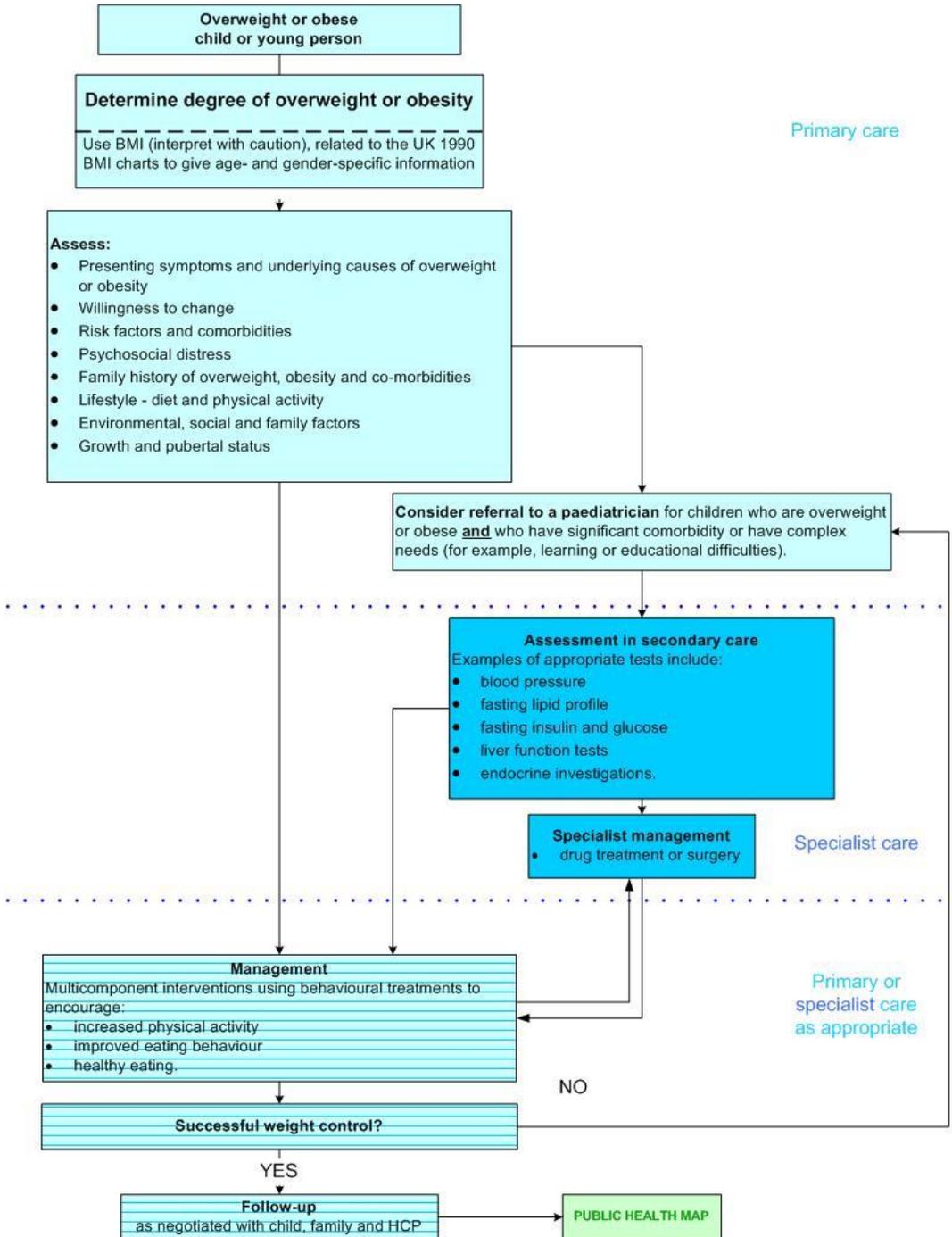
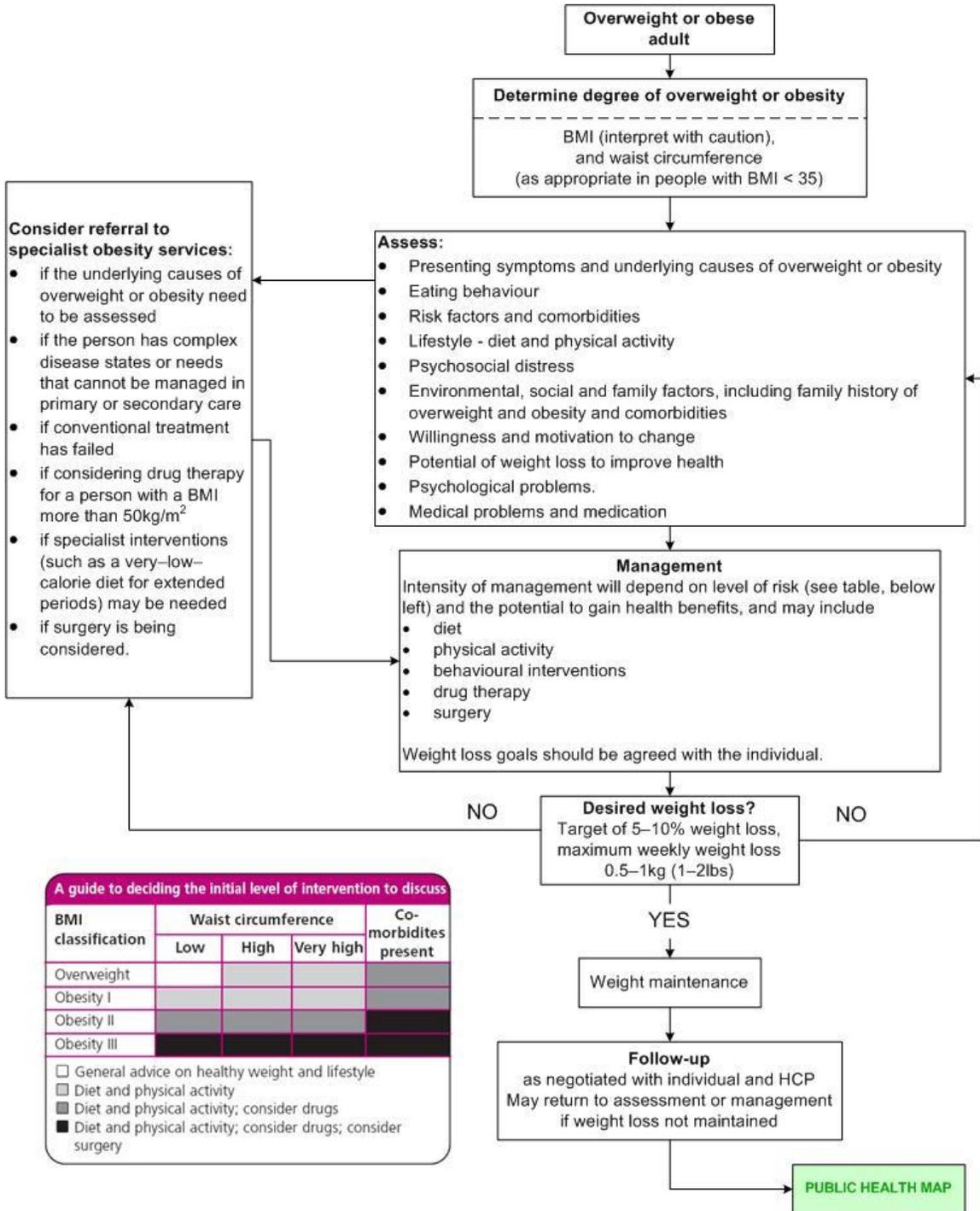


Figure 1.2 Clinical care pathway for adults (see also the NICE NHS Quick Reference Guide)

(BMI, body mass index; BP, blood pressure; HCP, healthcare professional)



1.4 Public health map

Figure 1.3a Public health map – children and young people

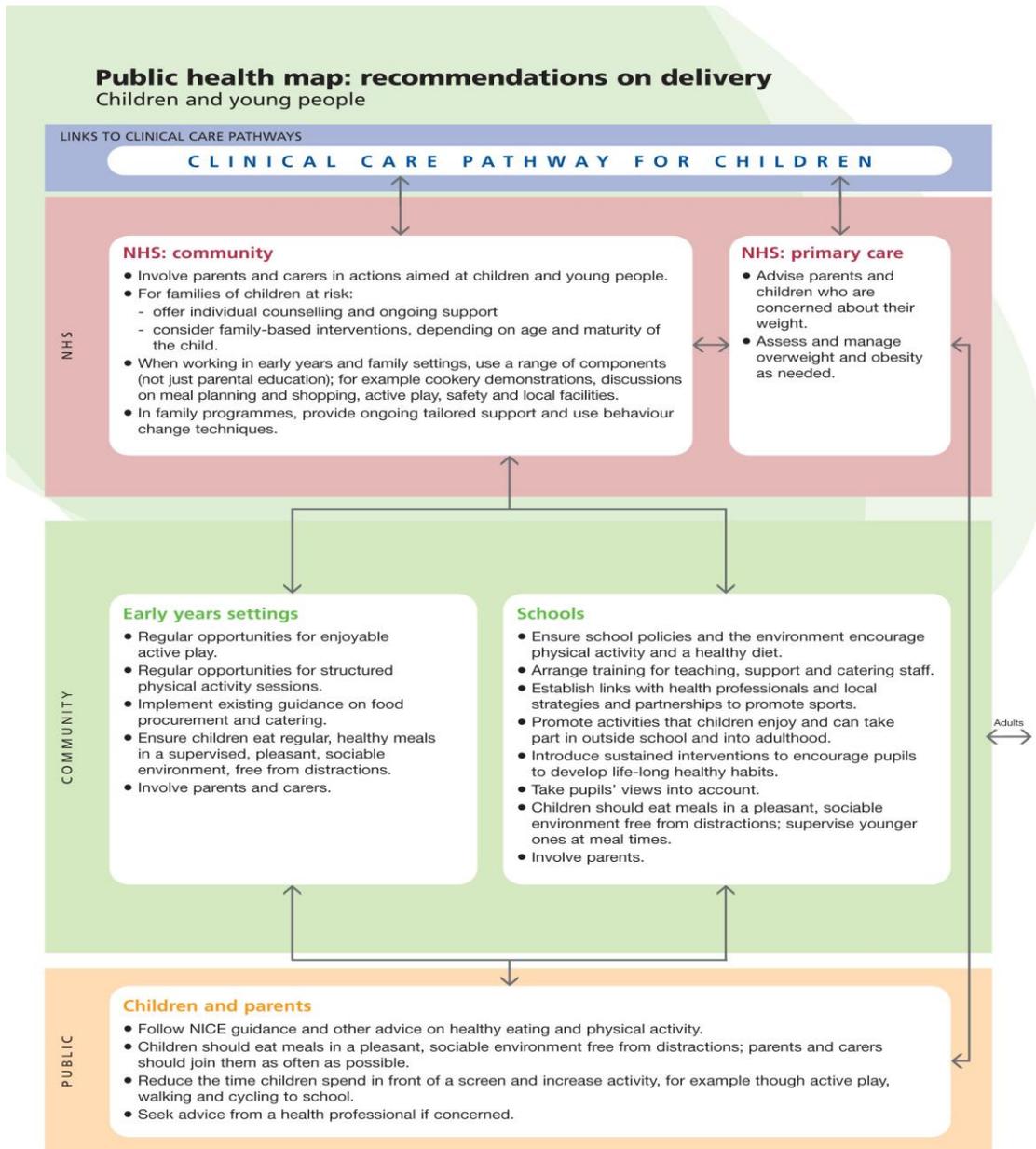
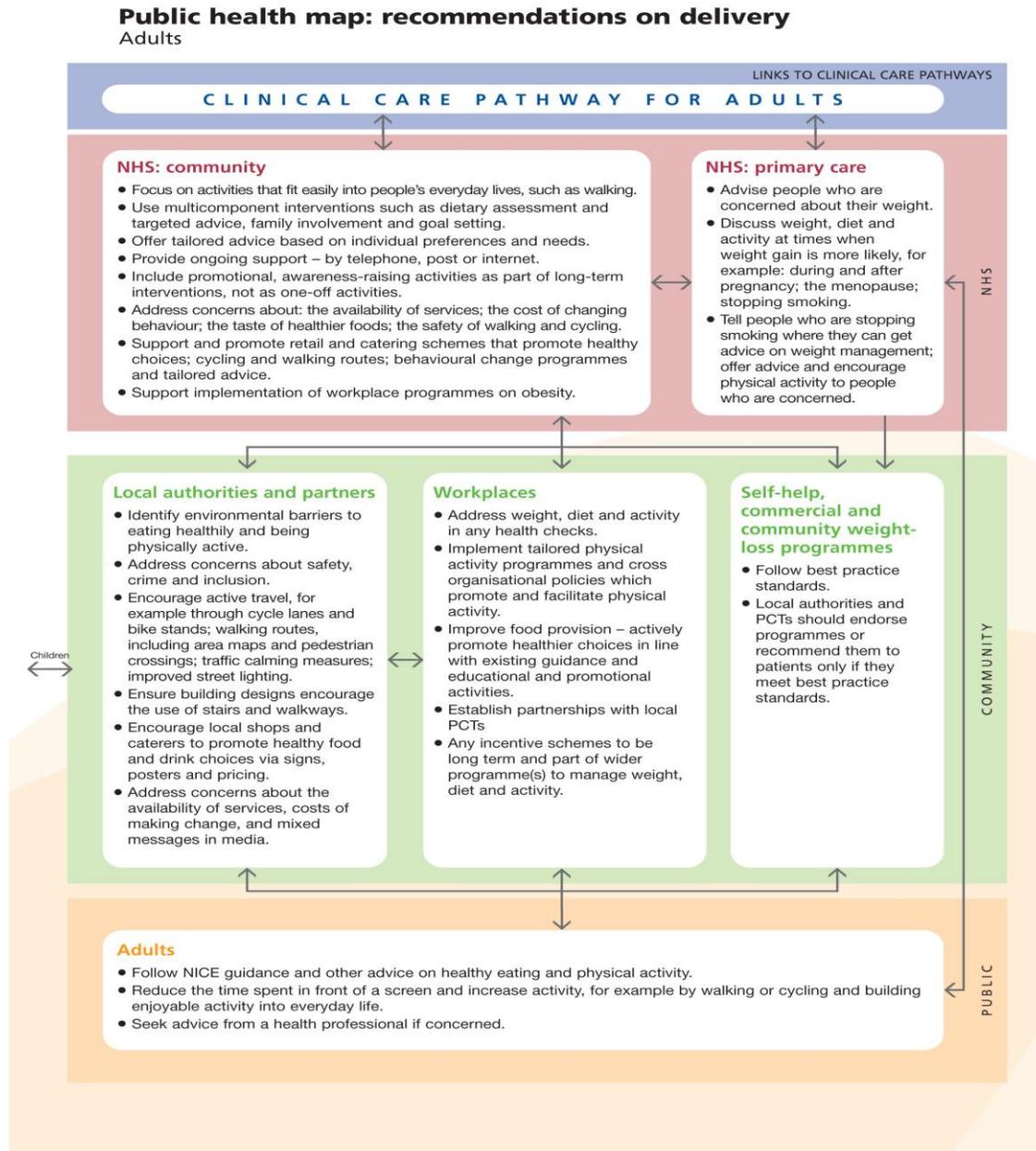
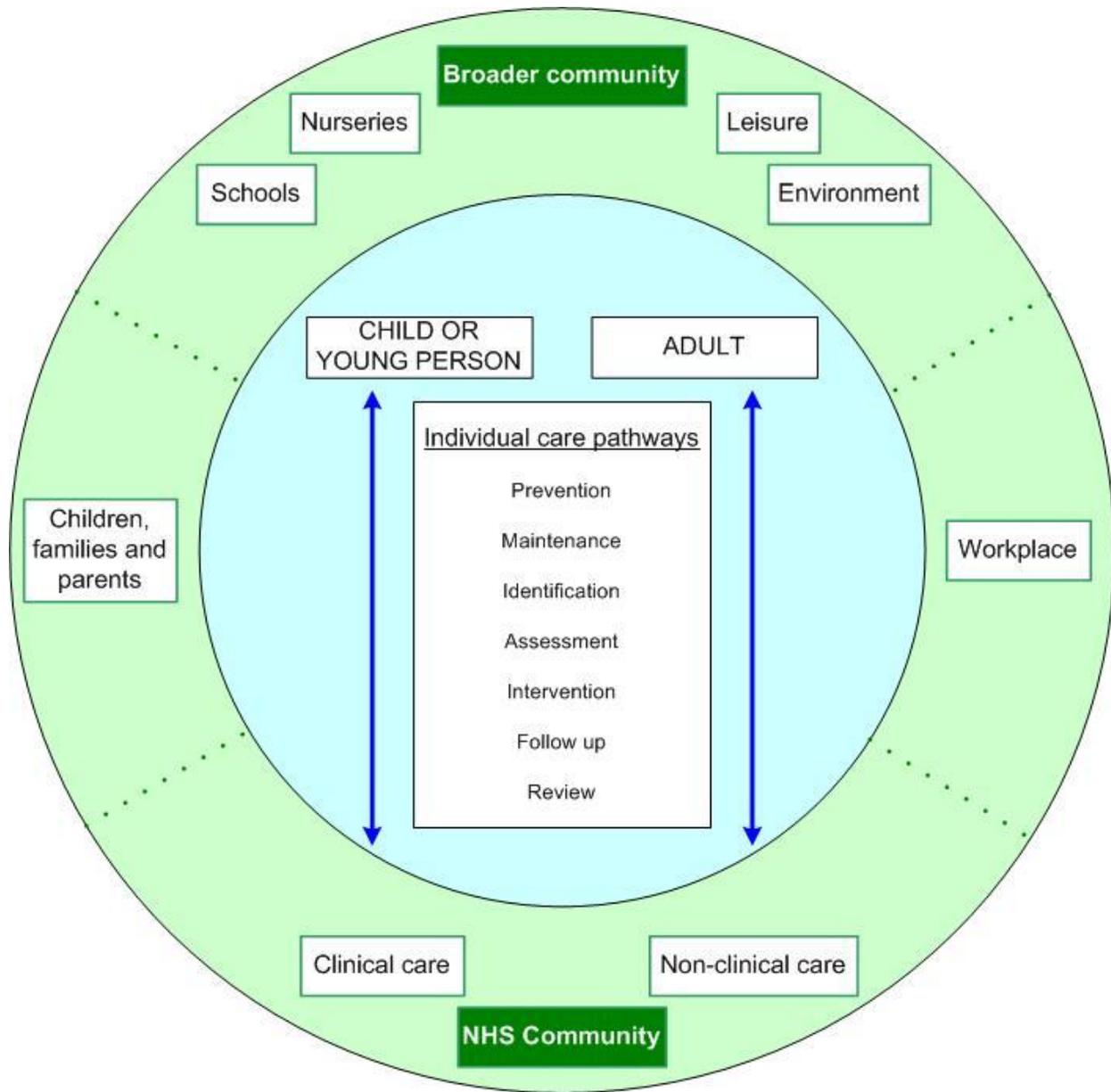


Figure 1.3b Public health map – adults



1.5 Links between public health and clinical care

Figure 1.4 Links between public health and clinical care



1.6 Public health recommendations

1.6.1 Existing guidance

The following is a brief overview of current public health guidance on diet, physical activity and the prevention of obesity. Key sources of further information are highlighted.

All recommendations should be viewed within the context of existing guidance and the 2004 public health White Paper 'Choosing health'.²

1.6.1.1 Diet

Standard UK population recommendations on 'healthy eating' are based on the recommendations of the Committee on the Medical Aspects of Food Policy (COMA)⁴⁻⁶ and subsequently the Scientific Advisory Committee on Nutrition (SACN).⁷ The recommendations can be summarised as shown in Table 1.1.

Table 1.1 Standard population dietary recommendations

Nutrient/food	Recommendation
Total fat	Reduce to no more than 35% food energy
Saturated fat	Reduce to no more than 11% food energy
Total carbohydrate	Increase to more than 50% food energy
Sugars (added)	Reduce to no more than 11% food energy
Dietary fibre	Increase non-starch polysaccharides to 18 g per day
Salt	Reduce to no more than 6 g salt per day ^a
Fruit and vegetables	Increase to at least five portions of a variety of fruit and vegetables per day
^a The maximum amount of salt recommended for children is less than that for adults – see www.salt.gov.uk	

These recommendations do not apply to children under 2 years of age. Between 2 and 5 years of age, a flexible approach to the timing and extent of dietary change should be taken. By the age of 5 years children should be consuming a diet consistent with the recommendations for adults.⁵

This advice is reflected in the 'National food guide, the balance of good health' (Figure 1.5).

Figure 1.5 The balance of good health



Reproduced by kind permission of the Food Standards Agency (FSA).

The Food Standards Agency summarises the advice as:

- Base your meals on starchy foods.
- Eat lots of fruit and vegetables.
- Eat more fish – including a portion of oily fish each week.
- Cut down on saturated fat and sugar.
- Try to eat less salt – no more than 6 g a day for adults.[†]

[†] The maximum amount of salt recommended for children is less than that for adults – see www.eatwell.gov.uk for specific recommendations.

- Get active and try to be a healthy weight.
- Drink plenty of water.
- Don't skip breakfast.
- And remember to enjoy your food!

With specific reference to the prevention of obesity the World Health Organization (WHO) concluded in 2003⁸ that 'there is convincing evidence that a high intake of energy dense foods promotes weight gain' and that 'the majority of studies show that a high intake of NSP (dietary fibre) promotes weight loss'. The report highlighted that 'energy dense foods tend to be high in fat (eg butter, oils, fried foods), sugars or starch, while energy dilute foods have a high fibre and water content (eg fruit and vegetables, whole grain cereals)'. The report also concluded that there was 'probable' evidence on increased consumption of sweetened drinks and large portion sizes increasing risk of weight gain and obesity.

Regarding alcohol intake, the Department of Health advises that men should not drink more than 3–4 units of alcohol per day, and women should drink no more than 2–3 units of alcohol per day. These daily benchmarks apply whether individuals drink every day, once or twice a week, or occasionally. The FSA also advises consumers that 'There is nothing wrong with having the occasional drink. But drinking too much can cause problems. Alcohol is also high in calories, so cutting down could help you control your weight.' A unit is half a pint of standard strength (3% to 5% ABV) beer, lager or cider, or a pub measure of spirit. A glass of wine is about 2 units and 'alcopops' are about 1.5 units.

1.6.1.2 Physical activity

Advice on physical activity has existed for several years, and the Chief Medical Officer's (CMO's) report 'At least five times a week' examined its validity in the light of evidence on the links between physical activity and health. The NICE guidance on obesity does not alter the current guidelines.

Adults

The current recommendations on physical activity for **general health benefits** are for adults to achieve a total of at least 30 minutes of at least moderate intensity physical activity, on 5 or more days of the week. These recommendations are also appropriate for older adults but it is highlighted that specific activities that promote improved strength, coordination and balance are particularly beneficial for older people. Achieving these levels of activity will represent a substantial increase in energy expenditure for most people.

To prevent obesity - in the absence of a reduction in energy intake, many people may need 45–60 minutes moderate activity each day .

To **prevent regaining weight** following weight loss among people who have been obese - 60–90 minutes moderate activity a day may be needed.

Children and young people

For children and young people, it is accepted that the evidence base is far from complete and the amount of activity that is required to prevent obesity is unclear. Currently it is recommended that children and young people should achieve a total of at least 60 minutes of at least moderate intensity physical activity each day, although it may be that this is inadequate to prevent the development of obesity. Between 60% and 70% of children¹⁰ meet the current recommendations yet the prevalence of obesity continues to rise.

At this time of rapid growth and development, it is recommended that at least twice a week activities should include those aiming to improve bone health, muscle strength and flexibility. These guidelines are intended to help deliver the **general health benefits** from a physically active lifestyle.

Types of activity

Sport England highlights that the definition of moderate intensity level physical activity varies according to the fitness level of the individual. A person doing moderate intensity activity will usually experience an increase in breathing rate, an increase in heart rate

and a feeling of increased warmth. Moderate intensity activities can include everyday activities such as brisk walking or cycling, structured exercise or sport.

All forms of bodily movement contribute to energy expenditure and so can contribute to the maintenance of a healthy weight or weight loss. This can therefore include activities which can easily fit into an individual's daily routine such as walking or cycling to work or school, walking a dog, housework and gardening.

The daily physical activity recommendations may be achieved through several short bouts of moderate intensity activity of 10 minutes or more, or by doing the activity in one session.

Examples of moderate-intensity activities

- brisk walking
- cycling
- swimming (with moderate effort)
- stair climbing (with moderate effort)
- gardening – digging, pushing mower or sweeping leaves
- general house cleaning
- painting and decorating
- general callisthenics (sit-ups, push-ups, chin-ups)
- gentle racquet sports such as table tennis and badminton (social)
- golf – walking, wheeling or carrying clubs.

NICE guidance on physical activity

The NICE guidance 'Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community based exercise programmes for walking and cycling' (2006) recommends that inactive individuals should be identified by using a validated tool, such as the Department of Health's general practice physical activity questionnaire (GP PAQ).

Potential risks

The wide range of health benefits of physical activity significantly outweigh the risks (for example, from injury or accidents), particularly at the levels of activity required to promote and maintain health. The CMO's 2004 report⁹ states that 'the people who will benefit most from physical activity are inactive people who begin to take part in regular moderate intensity activity. If these people increase their level of activity gradually, they are unlikely to face undue risks. The greatest risks from physical activity are faced by:

- people who take part in vigorous sports and exercise
- people who do excessive amount of exercise, and
- people with existing musculoskeletal disease or at high risk of disease.'

The report also highlights that many injuries that occur during physical activity are avoidable.

Sources of further information on existing guidance and trends

- http://www.fph.org.uk/policy_communication/publications/toolkits/obesity/default.asp
- www.foodstandards.gov.uk/
- www.eatwell.gov.uk/
- www.dh.gov.uk/
- www.5aday.nhs.uk/
- www.nhsdirect.nhs.uk/
- www.sportengland.org/

1.6.2 Division of the following recommendations

The public health recommendations are divided according to their key audiences and the settings they apply to:

- the public
- the NHS
- local authorities and partners in the community
- early years settings
- schools
- workplaces
- self-help, commercial and community programmes.

Some of the recommendations are at a strategic level (primarily for those involved in planning and management of service provision and policies), and others are at delivery level (for individual staff, teams and team managers).

1.6.3 Recommendations for the public

1.6.3.1 *Background*

Although body weight and weight gain are influenced by many factors, including genetics and the environment in which people live, research shows that the individual decisions people make will influence whether or not they are able to maintain a healthy weight.

- An individual needs to be in 'energy balance' to maintain a healthy weight – that is, when energy intake (calories from food) does not exceed energy expended (for example, through everyday activities and exercise).
- Many people find it difficult to maintain a healthy weight through their lives.
- People tend to gain weight gradually, over a long period of time, and such a pattern may go unnoticed.

- People tend to gain weight with age – and may find it harder to maintain a healthy weight as they get older. Many people may accept weight gain with age as inevitable but this does not have to be the case. Although physical changes related to ageing can contribute to age-related weight gain to some extent, the main reason is the small, gradual changes in people’s everyday lives (such as a tendency to being less active, or small changes to diet).
- People often gain weight during particular stages of their life, such as during and after pregnancy, during the menopause or after stopping smoking.

Small, gradual changes to daily habits, which are maintained over a long period of time, can help or hinder the ability of an individual to maintain a healthy weight. However, the effort required to gradually change long-standing behaviours cannot be underestimated. This situation is not helped by the range of (often conflicting) information available on the best options for maintaining a healthy weight.

The everyday habits that can help people maintain their weight are likely to have wider health benefits – such as reducing the risk of coronary heart disease, type 2 diabetes and some cancers.

1.6.3.2 Recommendations for all

Recommendation 1

Everyone should aim to maintain or achieve a healthy weight, to improve their health and reduce the risk of diseases associated with overweight and obesity, such as coronary heart disease, type 2 diabetes, osteoarthritis and some cancers.

Opinion of the GDG

Recommendation 2

People should follow the strategies listed in box 1, which may make it easier to maintain a healthy weight by balancing ‘calories in’ (from food and drink) and ‘calories out’ (from being physically active). Sources of advice and information are listed in 1.6.1.

Box 1 Strategies to help people achieve and maintain a healthy weight

Diet

Base meals on starchy foods such as potatoes, bread, rice and pasta, choosing wholegrain where possible.

Eat plenty of fibre-rich foods – such as oats, beans, peas, lentils, grains, seeds, fruit and vegetables, as well as wholegrain bread and brown rice and pasta.

Eat at least five portions of a variety of fruit and vegetables each day, in place of foods higher in fat and calories.

Eat a low-fat diet and avoid increasing your fat and/or calorie intake.

Eat as little as possible of:

- fried foods

- drinks and confectionery high in added sugars

- other food and drinks high in fat and sugar, such as some take-away and fast foods.

Eat breakfast.

Watch the portion size of meals and snacks, and how often you are eating.

For adults, minimise the calories you take in from alcohol.

Activity

Make enjoyable activities – such as walking, cycling, swimming, aerobics and gardening – part of everyday life.

Minimise sedentary activities, such as sitting for long periods watching television, at a computer or playing video games.

Build activity into the working day – for example, take the stairs instead of the lift, take a walk at lunchtime.

[Evidence statements, Energy balance: 3, 3b, 4, 5, 8, 9](#)

Recommendation 3

All adults should be encouraged to periodically check their weight, waist measurement or a simple alternative, such as the fit of their clothes.

Opinion of the GDG

Recommendation 4

People who have any queries or concerns about their – or their family's – diet, activity levels or weight should discuss these with a health professional such as a nurse, GP, pharmacist, health visitor or school nurse. They could also consult reliable sources of information, such as those listed in 1.6.1.

[Evidence statements, Identification: 6, 10](#)

[Evidence statements, Community 1: 16](#)

1.6.3.3 Recommendations for adults considering dieting to lose weight

The following recommendation applies to adults only. Children and young people concerned about their weight should speak to a nurse or GP.

Recommendation 5

Weight loss programmes (including commercial or self-help groups, slimming books or websites) are recommended only if they:

- are based on a balanced healthy diet
- encourage regular physical activity
- expect people to lose no more than 0.5–1 kg (1–2 lb) a week.

Programmes that do not meet these criteria are unlikely to help people maintain a healthy weight in the long term.

People with certain medical conditions – such as type 2 diabetes, heart failure or uncontrolled hypertension or angina – should check with their general practice or hospital specialist before starting a weight loss programme.

Opinion of the GDG

Recommendations for parents and carers

Recommendation 6

In addition to the recommendations in box 1, parents and carers should consider following the advice in box 2 to help children establish healthy behaviours and maintain or work towards a healthy weight. These strategies may have other benefits – for example, monitoring the amount of time children spend watching television may help reduce their exposure to inappropriate programmes or advertisements.

Box 2 Helping children and young people maintain or work towards a healthy weight

Diet

- Children and young adults should eat regular meals, including breakfast, in a pleasant, sociable environment without distractions (such as watching television).
- Parents and carers should eat with children – with all family members eating the same foods.

Activity

- Encourage active play – for example, dancing and skipping.
- Try to be more active as a family – for example, walking and cycling to school and shops, going to the park or swimming.
- Gradually reduce sedentary activities – such as watching television or playing video games – and consider active alternatives such as dance, football or walking.
- Encourage children to participate in sport or other active recreation, and make the most of opportunities for exercise at school.

[Evidence statement, Raising awareness: 11](#)
[Evidence statements, Energy balance: 3, 3b, 4, 5](#)
[Evidence statements, Early years: 10, 12, 15, 16](#)

1.6.4 NHS: health professionals

The following recommendations are specifically for health professionals.

Recommendations in other sections may also be relevant to health professionals.

1.6.4.1 Background

NHS organisations are **strongly advised** to implement the following recommendations.

The recommendations fall under 'developmental standards' – standards which the NHS is expected to achieve over time.

Audience

Senior managers, GPs, commissioners of care and Directors of Public Health have a key role.

Personnel involved in the identified interventions – providing the evidence for recommendations – include health promotion specialists, nurses, behavioural psychologists, physiotherapists, GPs, pharmacists, trained counsellors, registered dietitians, public health nutritionists and appropriately trained exercise specialists.

'Health professional' in the recommendations below refers to all appropriately trained allied health professionals in a position to provide public health advice, based in primary care and the wider community. There may also be a role for the new 'health trainers', as outlined in 'Choosing health',² although their competencies and remit is currently unclear. Additional trained front-line staff (for example, pharmacy assistants or support staff with GP practices) may also be in position to provide advice and support provided they have received sufficient training.

The recommendations below are divided into (i) strategic level and primarily for senior managers and budget holders involved in planning and management of service provision (such as local strategic partnerships, primary care trust (PCT) boards and foundation trusts) and (ii) delivery level and primarily for health professionals (individuals, teams and/or team managers).

Implementation

Prioritising action

Obesity – and implementing the following recommendations – should be an ongoing priority and should be clearly identified as such by local strategic partnerships (LSPs), PCT boards and managers, as well as front-line staff.

Implementation of the recommendations below will contribute to the public service agreement (PSA) target to halt the year on year rise in obesity in children under 11 years of age by 2010. Recommendations can be delivered through LSPs and community strategy implementation, including the Health, Social Care and Well-being strategies in Wales, as appropriate. They can also be included in local area agreements.

Tailoring advice

Tailoring advice is fundamental to the effectiveness of interventions aimed at groups and individuals and is highlighted in many of the recommendations below. Tailoring advice to address potential barriers (such as cost, personal tastes, availability, time, views of family and community members) is particularly important for people from black and minority ethnic groups (BMEGs), vulnerable groups (such as those on low incomes) and people at life stages with increased risk for weight gain (such as during pregnancy, menopause or smoking cessation). Many of the recommendations below also highlight the need to provide ongoing support – this can be in person by phone, mail or internet (as appropriate).

It is vital that all primary care settings ensure engagement with target communities; consult locally on the best mode of delivery, settings and key partnerships and ensure that interventions are client centred. See community recommendations for more information.

Training

The evidence suggests that the type of health professional who provides the advice is not critical as long as they have appropriate training and experience, are enthusiastic and able to motivate, and are able to provide long-term support. The following recommendations include action to ensure that health professionals and additional front-line staff have the skills to be involved in the prevention and management of obesity. It is recognised that there is currently poor uptake of some training courses, geographical variation in the availability of courses, and few courses which address both diet and activity. There are opportunities for training through, for example, workforce development programmes and NHS National Workforce Group and the DH/ASO 'Obesity training courses for primary care'¹² lists a range of courses.

Existing legislation

The following recommendations which refer to the planning of buildings, and stair use in particular, should be considered in the context of existing building regulations and policies, particularly in relation to inclusive access for disabled people.

Sources of further information

- National Heart Forum / Faculty of Public Health *Lightening the load: Tackling overweight and obesity* (2006):
http://www.heartforum.org.uk/Publications_NHFreports_Overweightandobesitytool.aspx
- Healthier catering (FSA): <http://www.food.gov.uk/healthiereating/healthycatering/>
- Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling. *NICE public health intervention guidance* no. 2 (2006). Available from: www.nice.org.uk/PHI002

Department of Health's general practice physical activity questionnaire (GPPAQ), to identify inactive individuals – see www.doh.gov.uk specific link to be available in September.

1.6.4.2 *Overarching recommendations*

Recommendation 1

Managers and health professionals in all primary care settings should ensure that preventing and managing obesity is a priority at both strategic and delivery levels. Dedicated resources should be allocated for action.

Opinion of the GDG

1.6.4.3 *Strategic recommendations for senior managers and budget holders*

Recommendation 2

In their role as employers, NHS organisations should set an example in developing public health policies to prevent and manage obesity by following existing guidance and (in England) the local obesity strategy. In particular:

- on-site catering should promote healthy food and drink choices (for example by signs, posters, pricing and positioning of products)
- there should be policies, facilities and information that promote physical activity, for example, through travel plans, by providing showers and secure cycle parking and by using signposting and improved décor to encourage stair use.

Opinion of the GDG

Recommendation 3

All primary care settings should ensure that systems are in place to implement the local obesity strategy. This should enable health professionals with specific training, including

public health practitioners working singly and as part of multidisciplinary teams, to provide interventions to prevent and manage obesity.

[Evidence statements, Community 1: 1, 2](#)

Recommendation 4

All primary care settings should:

- address the training needs of staff involved in preventing and managing obesity
- allocate adequate time and space for staff to take action
- enhance opportunities for health professionals to engage with a range of organisations and to develop multidisciplinary teams.

[Evidence statements, Community 1: 12, 13:](#)

Opinion of the GDG

Recommendation 5

Local health agencies should identify appropriate health professionals and ensure that they receive training in:

- the health benefits and the potential effectiveness of interventions to prevent obesity, increase activity levels and improve diet (and reduce energy intake)
- the best practice approaches in delivering such interventions, including tailoring support to meet people's needs over the long term
- the use of motivational and counselling techniques.

Training will need to address barriers to health professionals providing support and advice, particularly concerns about the effectiveness of interventions, people's receptiveness and ability to change and the impact of advice on relationships with patients.

[Evidence statements, Community 1: 11, 12, 14, 16, 17](#)

1.6.4.4 Recommendations for all health professionals

Recommendation 6

Interventions to increase physical activity should focus on activities that fit easily into people's everyday life (such as walking), should be tailored to people's individual preferences and circumstances and should aim to improve people's belief in their ability to change (for example, by verbal persuasion, modelling exercise behaviour and discussing positive effects). Ongoing support (including appropriate written materials) should be given in person or by phone, mail or internet.

[Evidence statements, Community 1: 4, 17](#)

Recommendation 7

Interventions to improve diet (and reduce energy intake) should be multicomponent (for example, including dietary modification, targeted advice, family involvement and goal setting), be tailored to the individual and provide ongoing support.

[Evidence statements, Community 1: 6, 7, 8, 11](#)

Recommendation 8

Interventions may include promotional, awareness-raising activities, but these should be part of a long-term, multicomponent intervention rather than one-off activities (and should be accompanied by targeted follow-up with different population groups).

[Evidence statements, Raising awareness: 1, 3, 6;](#)

Opinion of the GDG

Recommendation 9

Health professionals should discuss weight, diet and activity with people at times when weight gain is more likely, such as during and after pregnancy, the menopause and while stopping smoking.

[Evidence statements, BMEGs: 9, 10, 11, 12](#)

[Evidence statements, Energy balance: 6, 7](#)

Recommendation 10

All actions aimed at preventing excess weight gain and improving diet (including reducing energy intake) and activity levels in children and young people should actively involve parents and carers.

[Evidence statement, Early years: 16](#)

1.6.4.5 Health professionals working in/with primary care settings

Recommendation 11

All interventions to support smoking cessation should:

- ensure people are given information on services that provide advice on prevention and management of obesity if appropriate
- give people who are concerned about their weight general advice on long-term weight management, in particular encouraging increased physical activity.

[Evidence statement, BMEGs: 9](#)

[Evidence statement, Energy balance: 7](#)

1.6.4.6 Health professionals working in or with broader community settings

The recommendations in this section are for health professionals working in broader community settings, including healthy living centres and Sure Start programmes.

Recommendation 12

All community programmes to prevent obesity, increase activity levels and improve diet (including reducing energy intake) should address the concerns of local people from the outset. Concerns might include the availability of services and the cost of changing behaviour, the expectation that healthier foods do not taste as good, dangers associated with walking and cycling and confusion over mixed messages in the media about weight, diet and activity.

[Evidence statements, Community 1: 11, 17](#)

[Evidence statements, Community 2: 10, 12](#)

[Evidence statement, BMEGs: 21](#)

Recommendation 13

Health professionals should work with shops, supermarkets, restaurants, cafes and voluntary community services to promote healthy eating choices that are consistent with existing good practice guidance and to provide supporting information.

[Evidence statements, Community 2: 5](#)

Recommendation 14

Health professionals should support and promote community schemes and facilities that improve access to physical activity, such as walking or cycling routes, combined with tailored information, based on an audit of local needs.

[Evidence statements, Community 2: 6, 8](#)

Recommendation 15

Health professionals should support and promote behavioural change programmes along with tailored advice to help people who are motivated to change become more active, for example by walking or cycling instead of driving or taking the bus.

[Evidence statements, Community 2: 7, 8](#)

Recommendation 16

Families of children and young people identified as being at high risk of obesity – such as children with at least one obese parent – should be offered ongoing support from an appropriately trained health professional. Individual as well as family-based interventions should be considered, depending on the age and maturity of the child.

[Evidence statements, Identification: 2, 3](#)

[Evidence statement, Energy balance: 2](#)

[Evidence statements, Early years: 4, 5, 6, 14](#)

1.6.4.7 Health professionals working in/with pre-school, childcare and family settings

Recommendation 17

Any programme to prevent obesity in preschool, childcare or family settings should incorporate a range of components (rather than focusing on parental education alone), such as:

- diet – interactive cookery demonstrations, videos and group discussions on practical issues such as meal planning and shopping for food and drink
- physical activity – interactive demonstrations, videos and group discussions on practical issues such as ideas for activities, opportunities for active play, safety and local facilities.

[Evidence statements, Early years: 5,9, 12,](#)

Opinion of the GDG

Recommendation 18

Family programmes to prevent obesity, improve diet (and reduce energy intake) and/or increase physical activity levels should provide ongoing, tailored support and incorporate a range of behaviour change techniques (see Clinical Recommendations, Lifestyle interventions). Programmes should have a clear aim to improve weight management.

[Evidence statement, Early years: 4, 5, 8, 14, 16](#)

1.6.4.8 Health professionals working in/with workplace settings

Recommendation 19

Health professionals such as occupational health staff and public health practitioners should establish partnerships with local businesses and support the implementation of workplace programmes to prevent and manage obesity.

Opinion of the GDG

1.6.5 Local authorities and partners in the local community

1.6.5.1 Background

The environment in which people live may influence their ability to maintain a healthy weight – this includes access to safe spaces to be active and access to an affordable, healthier diet. All local planning decisions may therefore have an impact on the health of the local population. Furthermore, the evidence suggests that there are fundamental barriers that need to be addressed if individuals are to change their behaviour – such as concerns about safety, transport links and services. These issues may be being addressed through other initiatives – the health impact on the local population provides further impetus for action. Effective interventions often require multidisciplinary teams and the support of a broad range of organisations. In England local authorities, LSPs and PCTs are in prime position to be able to establish effective partnerships. Therefore local authorities and LSPs, along with PCTs have a key role in the prevention of obesity. In Wales, in addition to local authorities, Health Social Care and Well-being partnerships, local health alliances, local health boards and local public health teams (LPHTs) are likely to fulfil this role.

Audience

Local authorities and LSPs are strongly encouraged to implement the recommendations below.

The recommendations below are divided into: (i) strategic level and primarily for senior managers and budget holders (primarily for those involved in the management, planning and commissioning of services, such as the provision and management open spaces and sports facilities) and (ii) delivery of specific community-based interventions.

Deployment of resources, beyond statutory requirements, are dependent on strategic leadership. Ensuring public health policies apply across local authority departments in a coordinated way requires them to be embedded in the authority's strategic priorities and monitored.

The following recommendations apply to all those working in local authorities, LSPs and other local community partnerships – not just those with an explicit health role – including the following.

Local authorities

- Councillors and members
- Planning services
- Transport services
- Leisure services
- Catering services
- Public health
- Environmental health services
- Children's services
- Educational services
- Housing services
- Social services
- Leisure services and trusts
- Cultural services

Partners

- Directors of public health, public health advisers and commissioners of services
- All health professionals in a position to establish partnerships with a broad range of community based organisations.

- Peer support workers and health trainers
- Local voluntary organisations
- Local community organisations and networks
- Local businesses and workplaces
- Private leisure services
- Children's trusts
- Higher education institutions (research units)
- Other relevant government agencies and non governmental organisations (NGOs).

It is assumed that staff in local authority and community settings will have the appropriate competencies to take forward the following recommendations. Where this is not the case, training options should be considered.

Implementation

Implementation of the following recommendations is likely to contribute to local area agreements, public service agreements and comprehensive performance assessment targets. The need to work in partnership to take forward recommendations to tackle obesity should be reflected in the integrated regional strategies and reviewed on a regular basis through the regional assemblies.

Please note that NICE is developing public health programme guidance on Physical activity in the environment, due September 2007.

Supportive information from ODPM:

- 'Creating healthier communities: a resource pack for local partnerships'¹³
- 'Planning and policy statement 1: delivering sustainable development'¹⁴

Supportive information from the Health Development Agency:

- 'Evaluation of community level interventions for health improvement'¹⁵
- 'Planning across the LSP: case studies of integrating community strategies and health improvement'¹⁶
- 'Working partnership: book 1 – introduction'¹⁷
- 'Working partnership: book 2 – short assessment'¹⁸
- 'Working partnership: book 3 – in-depth assessment'¹⁹
- 'Working partnership: looseleaf worksheets'²⁰
- 'Partnership working: a consumer guide to resources'²¹
- Health needs assessment: a practical guide²²
- 'Evaluation resources for community food projects'²³
- Clarifying approaches to: health needs assessment, health impact assessment, integrated impact assessment, health equity audit, and race equality impact assessment²⁴

Supportive information from the Local Government Association

- Comprehensive performance assessments²⁵

Supportive information from the Department for Transport:

- Accessibility Planning Guidance²⁶
- Walking and Cycling²⁷

The following recommendations which refer to the planning of buildings, and stair use in particular, should be considered in the context of existing building regulations and policies, particularly in relation to inclusive access for disabled people.

Local authorities and their partners are strongly encouraged to monitor and evaluate the impact of **all** local action (including action that is not directly related to health). The positive and negative impact of **all** policies should be considered. The evaluation of projects should be an integral part of funding.

1.6.5.2 *Overarching recommendation*

Recommendation 1

As part of their roles in regulation, enforcement and promoting wellbeing, local authorities, primary care trusts (PCTs) or local health boards and local strategic partnerships should ensure that preventing and managing obesity is a priority for action – at both strategic and delivery levels – through community interventions, policies and objectives. Dedicated resources should be allocated for action.

Opinion of the GDG

1.6.5.3 *Strategic recommendations for senior managers and budget holders*

Recommendation 2

Local authorities should set an example in developing policies to prevent obesity in their role as employers, by following existing guidance and (in England) the local obesity strategy.

- On-site catering should promote healthy food and drink choices (for example by signs, posters, pricing and positioning of products).
- Physical activity should be promoted, for example through travel plans, by providing showers and secure cycle parking and using signposting and improved décor to encourage stair use.

Opinion of the GDG

Recommendation 3

Local authorities (including planning, transport and leisure services) should engage with the local community, to identify environmental barriers to physical activity and healthy eating. This should involve:

- an audit, with the full range of partners including PCTs or local health boards, residents, businesses and institutions
- assessing (ideally by doing a health impact assessment) the affect of their policies on the ability of their communities to be physically active and eat a healthy diet; the needs of subgroups should be considered because barriers may vary by, for example, age, gender, social status, ethnicity, religion and whether an individual has a disability.

Barriers identified in this way should be addressed.

[Evidence statements, Community 2: 10, 11, 12, 13, 15](#)

[Evidence statement, BMEGs: 21](#)

Recommendation 4

Local authorities should work with local partners, such as industry and voluntary organisations, to create and manage more safe spaces for incidental and planned physical activity, addressing as a priority any concerns about safety, crime and inclusion, by:

- providing facilities such as cycling and walking routes, cycle parking, area maps and safe play areas
- making streets cleaner and safer, through measures such as traffic calming, congestion charging, pedestrian crossings, cycle routes, lighting and walking schemes

- ensuring buildings and spaces are designed to encourage people to be more physically active (for example, through positioning and signing of stairs, entrances and walkways)
- considering in particular people who require tailored information and support, especially inactive, vulnerable groups.

[Evidence statements, Community 2: 6, 8, 9, 11](#)

[Evidence statements, Workplace: 9](#)

Opinion of the GDG

Recommendation 5

Local authorities should facilitate links between health professionals and other organisations to ensure that local public policies improve access to healthy foods and opportunities for physical activity.

[Evidence statements, Community 2: 5](#)

1.6.5.4 Recommendations focusing on specific interventions

Recommendation 6

Local authorities and transport authorities should provide tailored advice such as personalised travel plans to increase active travel among people who are motivated to change.

[Evidence statements, Community 2: 7, 8](#)

Recommendation 7

Local authorities, through local strategic partnerships, should encourage all local shops, supermarkets and caterers to promote healthy food and drink, for example by signs,

posters, pricing and positioning of products, in line with existing guidance and (in England) with the local obesity strategy.

[Evidence statements, Community 2: 5](#)

Recommendation 8

All community programmes to prevent obesity, increase activity levels and improve diet (and reduce energy intake) should address the concerns of local people. Concerns might include the availability of services and the cost of changing behaviour, the expectation that healthier foods do not taste as good, dangers associated with walking and cycling and confusion over mixed messages in the media about weight, diet and activity.

[Evidence statement, Community 2: 12](#)

Recommendation 9

Community-based interventions should include awareness-raising promotional activities, but these should be part of a longer-term, multicomponent intervention rather than one-off activities.

[Evidence statement, Raising awareness: 1,2,3,6](#)

1.6.6 Early years settings

1.6.6.1 Background

The pre-school years (age 2-5 years) are known to be a key stage in the life course for shaping attitudes and behaviours. Lifelong habits which can have an impact on an individual's ability to maintain a healthy weight may be established during the pre-school years. Parents are ultimately responsible for their children's development but childcare providers may also play an important role by providing opportunities for children to be active and develop healthy eating habits and by acting as positive role models.

Audience

The following recommendations apply to:

- Directors of children's services
- Children and young people's strategic partnerships
- Staff, including senior management, in childcare and pre-school settings
- Children's trusts, Children's centres, Healthy Start and Sure Start teams (including Sure Start Children's Centres)
- Trainers and child care staff, including home based childminders and nannies

Implementation[‡]

It is assumed that staff in childcare settings will have the appropriate competencies to take forward the following recommendations. Where this is not the case, training options should be considered, as should the potential to establish partnerships with local PCTs/appropriate health professionals.

[‡] In the following recommendations, 'family' or 'parents' primarily refers to nuclear family members, and principal carers of children not living in a traditional family environment, although it may also include extended family members as appropriate. However, please note that the following recommendations are predominantly based on research that involved nuclear families (that is. one or more children, with one or two parents, with whom they lived).

The following recommendations will support:

- Children and young people's plan
- Local area agreement commitments to children and young people
- Sure Start initiatives, including Sure Start Children's Centres.
- The joint Department of Health, DfES and Department for Culture, Media and Sport (DCMS) target to halt the year on year rise in obesity among children under 11 by 2010. The recommendations may also support a range of other public service agreements
- Recommendations outlined in the National Service Framework for Children and *Every Child Matters*

Please note that NICE is currently developing *Guidance to improve the nutrition of pregnant and breast feeding mothers and children in low income households for midwives, health visitors, pharmacists and other primary care services*

Sources of information

- National Service Framework for Children
<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/ChildrenServices/ChildrenServicesInformation/fs/en>
- <http://www.everychildmatters.gov.uk/>
- The Caroline Walker Trust recommendations *Eating Well for Under 5s in Childcare* (2006):<http://www.cwt.org.uk/>
- Department for Education and Skills guidance on food and drink, and physical education:
- <http://www.teachernet.gov.uk/wholeschool/healthyliving/foodanddrink/>
- <http://www.teachernet.gov.uk/wholeschool/healthyliving/physicaleducation/>

1.6.6.2 Recommendations for all settings

Recommendation 1

All nurseries and childcare facilities should ensure that preventing excess weight gain and improving children's diet and activity levels are priorities.

Opinion of the GDG

Recommendation 2

All action aimed at preventing excess weight gain, improving diet (and reducing energy intake) and increasing activity levels in children should involve parents and carers.

[Evidence statement, Early years: 16](#)

Recommendation 3

Nurseries and other childcare facilities should:

- minimise sedentary activities during play time, and provide regular opportunities for enjoyable active play and structured physical activity sessions
- implement Department for Education and Skills, Food Standards Agency and Caroline Walker Trust[§] guidance on food procurement and healthy catering.

[Evidence statements, Early years : 7, 9, 11, 12, 17](#)

[§] See www.cwt.org.uk

Recommendation 4

Staff should ensure that children eat regular, healthy meals in a pleasant, sociable environment free from other distractions (such as television). Children should be supervised at mealtimes and, if possible, staff should eat with children.

Opinion of the GDG

1.6.7 Schools

1.6.7.1 Background

The school years are known to be a key stage in the life course for shaping attitudes and behaviours. Life-long habits which can have an impact on an individual's ability to maintain a healthy weight may be established during the school years. Improving children's diet and activity levels may also have wider benefits. For example, regular physical activity is strongly associated with higher academic achievement and with improved health in childhood and later life.²⁸ Physical activity has also been associated with higher motivation at school, reduced anxiety and depression, which in turn has a positive impact on school work.²⁸ Campbell²⁹ has highlighted that just as poor health has a negative impact on educational attainment, so high achievement positively affects social and economic prospects and subsequent choices about health.

Parents are ultimately responsible for their children's development but schools also play an important role by providing opportunities for children to be active, develop healthy eating habits and by providing important role models.

All school policies have the potential to have some impact on a child's ability to maintain a healthy weight, eat a healthy diet and be physically active. These range from the school selection processes themselves (which may determine whether a child can walk or cycle to school), to the curriculum content such as school sports, school food policies including policies on vending, packed lunches and snacks, school travel plans, extended schools policies, anti bullying policies, training opportunities for all school staff, engagement with wider community (including local business and sports facilities), fundraising choices, and the extent to which national policies (such as the National Healthy Schools Programme and nutritional standards for school meals) are implemented.

There is no evidence to suggest that school-based interventions to prevent obesity improve diet and increase activity levels foster eating disorders or extreme dieting or exercise behaviour (see section 3, chapter 9, evidence statement 8).

Audience

The following recommendations apply to:

- Directors of children's services
- Staff, including senior management, in schools
- School governors
- Health professional working in or with schools
- Children and young people's strategic partnerships
- Children's trusts

Implementation^{}**

It is assumed that staff working in schools (or with school-aged children and their families) will have the appropriate competencies to take forward the following recommendations. Where this is not the case, training options should be considered, as should the potential to establish partnerships with local PCTs/appropriate health professionals.

The following recommendations will support:

^{**} In the following recommendations, 'family' or 'parents' primarily refers to nuclear family members, and principal carers of children not living in a traditional family environment, although it may also include extended family members as appropriate. However, please note that the following recommendations are predominantly based on research that involved nuclear families (ie one or more children, with one or two parents, with whom they lived).

- The joint DH, DfES and DCMS target to halt the year on year rise in obesity among children under 11 by 2010. The recommendations may also support a range of other public service agreements.
- The Physical Education, School Sport and Club Links (PESSCL) strategy.
- The National Healthy Schools Programme in England and the Welsh Network of Health Schools schemes.
- The Healthy Living Blueprint.
- Local area agreement commitments to children and young people.
- Recommendations outlined in the National Service Framework for Children and 'Every child matters'.
- Guidance on nutritional standards for school meals (due 2006).

The Healthy Schools Programme highlights that engagement of **all** staff is central to success. The Healthy Schools Programme promotes the professional development of staff by providing them with an opportunity to take responsibility for the management of a whole school project.

Ofsted, Healthy Schools and the School Food Trust have as part of their remit the monitoring and assessment of school food provision and consumption,

Existing legislation

The following recommendations which refer to the planning of buildings, and stair use in particular, should be considered in the context of existing building regulations and policies, particularly in relation to inclusive access for disabled people.

Sources of information

Food

- Whole-school approach (general): www.wiredforhealth.gov.uk/
- Whole school approach (food):
 - www.foodinschools.org/
 - www.food.gov.uk/multimedia/pdfs/foodpolicygovernor.pdf
- Catering in schools (DfES): www.dfes.gov.uk/schoollunches/
- Catering in schools (FSA):
 - www.food.gov.uk/multimedia/pdfs/bookmarknut.pdf
 - www.food.gov.uk/multimedia/pdfs/fruittuckwales.pdf
 - www.food.gov.uk/interactivetools/educational/bashstreetdiet/further_info#h_1
- Catering in schools (School Food Trust): www.schoolfoodtrust.org.uk
- Food Standards Agency advice on healthier catering and lunchboxes:
<http://www.food.gov.uk/healthiereating/healthycatering/>
<http://www.food.gov.uk/news/newsarchive/2004/sep/toplunchboxtips>

Sport

- www.qca.org.uk/pess/pdf/pe_update_autumn_05.pdf
- www.standards.dfes.gov.uk/specialistschools/what_are/sports/
- www.youthsporttrust.org/
- www.sportengland.org/county_sports_partnerships

- www.teachernet.gov.uk/pe

Travel plans

- www.saferoutestoschools.org.uk
- www.dft.gov.uk/stellent/groups/dft_susttravel/documents/page/dft_susttravel_504055.hcsp

1.6.7.2 Overarching recommendation

Recommendation 1

All schools should ensure that improving the diet and activity levels of children and young people is a priority for action to help prevent excess weight gain. A whole-school approach should be used to develop life-long healthy eating and physical activity practices.

Opinion of the GDG

1.6.7.3 Strategic recommendations for head teachers and chairs of governors

Recommendation 2

Head teachers and chairs of governors, in collaboration with parents and pupils, should assess the whole school environment and ensure that the ethos of all school policies helps children and young people to maintain a healthy weight, eat a healthy diet and be physically active, in line with existing standards and guidance. This includes policies relating to building layout and recreational spaces, catering (including vending machines) and the food and drink children bring into school^{††}, the taught curriculum

^{††} See www.schoolfoodtrust.org.uk

(including PE), school travel plans and provision for cycling, and policies relating to the National Healthy Schools Programme and extended schools.

[Evidence statements, Schools: 1, 4, 5, 7](#)

Recommendation 3

Head teachers and chairs of governors should ensure that teaching, support and catering staff receive training on the importance of healthy-school policies and how to support their implementation.

[Evidence statement, Schools: 10;](#)

Opinion of the GDG

Recommendation 4

Schools should establish links with relevant organisations and professionals, including health professionals and those involved in local strategies and partnerships to promote sports for children and young people.

Opinion of the GDG

Recommendation 5

Interventions should be sustained, multicomponent and address the whole school, including after-school clubs and other activities. Short-term interventions and one-off events are insufficient on their own and should be part of a long-term integrated programme

[Evidence statements, Schools: 1, 4, 5, 7](#)

1.6.7.4 Recommendations for teachers, health and other professionals, and parents

Recommendation 6

Staff delivering physical education, sport and physical activity should promote activities that children and young people find enjoyable and can take part in outside school, through into adulthood. Children's confidence and understanding of why they need to continue physical activity throughout life (physical literacy) should be developed as early as possible.

[Evidence statement, Schools: 12](#)

Opinion of the GDG

Recommendation 7

Children and young people should eat meals (including packed lunches) in school in a pleasant, sociable environment. Younger children should be supervised at mealtimes and, if possible, staff should eat with children.

Opinion of the GDG

1.6.7.5 Children and parents

Recommendation 8

Staff planning interventions should consider the views of children and young people, any differences in preferences between boys and girls, and potential barriers (such as cost or the expectation that healthier foods do not taste as good).

[Evidence statements, Schools: 11, 12](#)

Recommendation 9

Where possible, parents should be involved in school-based interventions through, for example, special events, newsletters and information about lunch menus and after-school activities.

Opinion of the GDG

1.6.8 Workplace

1.6.8.1 Background

In addition to fundamental health and safety policies, the workplace has considerable potential for addressing wider public health issues, such as obesity. The workplace may have an impact on an individual's ability to maintain a healthy weight both directly, by supporting an individual to make healthier eating choices (for example, by the provision of healthier food choices in on-site catering, including staff restaurants and vending machines) and opportunities for physical activity (such as the option to use stairs instead of lifts, staff gym, cycle parking, provision of changing and shower facilities), and indirectly, through the overall culture of the organisation (for example, through appropriate policies and incentive schemes). Although addressing obesity is not a core aim of workplaces, taking action may result in significant benefit for employers as well as employees.

Audience

The recommendations apply to a range of internal and external staff, including:

- senior managers
- health and safety managers
- occupational health staff
- unions and staff representatives
- employers' organisations and chambers of commerce
- health professionals working with businesses.

The recommendations below are divided into:

- those that all organisations may be able to achieve, with sufficient input and support from a range of staff, including senior management
- those that are resource intensive and which may only be fully achieved by the NHS, public bodies and larger private organisations.

It is acknowledged that the ability of a workplace to take action is strongly influenced by its size and the availability of on-site occupational health leads. The NHS, public organisations and large employers are strongly encouraged to implement the following recommendations.

Smaller organisations should consider the following recommendations as best practice. In particular, smaller organisations may be able to make a useful contribution through full consideration of any new and existing policies and procedures in the light of the recommendations below.

Implementation issues

The evidence to date suggests that workplace initiatives are more likely to be effective if:³⁰

- initiatives take an interdisciplinary approach with broad representation including health and safety and human resources, and implementers from high grades and strategic positions
- initiatives are integrated into workplace objectives
- initiatives ensure staff involvement, communication and realistic objectives
- activities go beyond the superficial and address root causes (such as workplace culture in relation to working hours and lunch breaks).

In many instances the recommendations are likely to build on existing initiatives – such as:

- the impetus for workplaces to produce travel plans
- existing health at work and catering awards
- the promotion of corporate social responsibility

- Investors in People and Investors in Health (supports workplace health promotion – see <http://investorsinhealth.org/>)
- the Corporate Health Standard for Wales
- Department for Work and Pensions (DWP), Department of Health and HSE strategy Health, Work and Well-being – Caring for Our Future (2005)^{add reference}

In order to implement the following recommendations it is suggested that LSPs help local businesses establish effective partnerships with organisations (including the NHS and independent providers) that may be able to provide advice and support on occupational health issues. For example, NHS Plus is a network of NHS occupational health departments which provides services for external organisations; businesses can locate local services through the website www.nhsplus.nhs.uk. Information is also available from the Faculty of Occupational Medicine (see www.facocmed.ac.uk). In addition, it is suggested that workplaces refer to existing guidance, such as that published by the former Health Development Agency, ODPM and DWP.

The British Heart Foundation have produced a Think Fit workplace activity tool kit. <http://www.bhf.org.uk/thinkfit/index.asp?SecID=1590&secondlevel=1592>

Existing legislation

The following recommendations which refer to the planning of buildings, and stair use in particular, should be considered in the context of existing building regulations and policies, particularly in relation to inclusive access for disabled people.

1.6.8.2 Overarching recommendation

Recommendation 1

All workplaces, particularly large organisations such as the NHS and local authorities, should address the prevention and management of obesity, because of the considerable impact on the health of the workforce and associated costs to industry.

Workplaces are encouraged to collaborate with local strategic partnerships and to ensure that action is in line with the local obesity strategy (in England).

Opinion of the GDG

1.6.8.3 Recommendations for all workplaces

Recommendation 2

Workplaces should provide opportunities for staff to eat a healthy diet and be more physically active, through:

- active and continuous promotion of healthy choices in restaurants, hospitality, vending machines and shops for staff and clients, in line with existing Food Standards Agency guidance
- working practices and policies, such as active travel policies for staff and visitors
- a supportive physical environment, such as improvements to stairwells and providing showers and secure cycle parking
- recreational opportunities, such as supporting out-of-hours social activities, lunchtime walks and use of local leisure facilities.

[Evidence statements, Workplace: 3, 4, 6, 7, 8, 9, 16](#)

[Evidence statements, Workplace: 8, 9](#)

[Evidence statement, Community 1: 4](#)

[Evidence statement, Community 2: 6](#)

Recommendation 3

Incentive schemes (such as policies on travel expenses, the price of food and drinks sold in the workplace and contributions to gym membership) that are used in a workplace should be sustained and part of a wider programme to support staff in managing weight, improving diet and increasing activity levels.

[Evidence statement, Workplace: 2](#)

[Evidence statement, Community 1: 5](#)

1.6.8.4 Recommendations for NHS, public organisations and large commercial organisations

Recommendation 4

Workplaces providing health checks for staff should ensure that they address weight, diet and activity, and provide ongoing support.

[Evidence statement, Workplace: 1](#)

Recommendation 5

Action to improve food and drink provision in the workplace, including restaurants, hospitality and vending machines, should be supported by tailored educational and promotional programmes, such as a behavioural intervention or environmental changes (for example, food labelling or changes to availability).

For this to be effective, commitment from senior management, enthusiastic catering management, a strong occupational health lead, links to other on-site health initiatives, supportive pricing policies and heavy promotion and advertisement at point of purchase are likely to be needed.

[Evidence statements, Workplace: 4, 6, 7, 14, 15, 16](#)

1.6.9 Recommendations For The Management Of Obesity: Self Help, Commercial And Community Settings

1.6.9.1 Background

There are many providers and services that may contribute to and collaborate with local health agencies to help address overweight and obesity. However, these are of variable quality. It is vital that these services meet minimum standards in terms of best practice, staffing and facilities.

Health and other professionals in primary care, community and local authority settings should have the appropriate knowledge and skills to take forward the following recommendations. Where this is not the case, training options should be considered.

1.6.9.2 Strategic recommendations for local strategic health agencies and local authorities

Recommendation 1

Primary care organisations and local authorities should recommend to patients, or consider endorsing, self-help, commercial and community weight management programmes only if they follow best practice^{‡‡} by:

- helping people assess their weight and decide on a realistic healthy target weight (people should usually aim to lose 5–10% of their original weight)
- aiming for a maximum weekly weight loss of 0.5–1 kg
- focusing on long-term lifestyle changes rather than a short-term, quick-fix approach
- being multicomponent, addressing both diet and activity, and offering a variety of approaches

^{‡‡} Based on information from the British Dietetic Association 'Weight Wise' Campaign (www.bdaweightwise.com/support/support_approach.aspx); the advice on target weights is the opinion of the Clinical Management Guidance Development Group.

- using a balanced, healthy-eating approach
- recommending regular physical activity (particularly activities that can be part of daily life, such as brisk walking and gardening) and offering practical, safe advice about being more active
- including some behaviour-change techniques, such as keeping a diary and advice on how to cope with 'lapses' and 'high-risk' situations
- recommending and/or providing ongoing support.

[Evidence statement, Management of obesity non clinical settings: 1](#)

Opinion of the GDG

1.6.9.3 Recommendations for health professionals (working in primary care or community settings)

Recommendation 2

Health professionals should discuss the range of weight management options with people who want to lose or maintain their weight, or are at risk of weight gain, and help them decide what best suits their circumstances and what they will be able to sustain in the long term.

Opinion of the GDG

Recommendation 3

General practices and other primary or secondary care settings recommending commercial, community and/or self-help weight management programmes should continue to monitor patients and provide support and care.

Opinion of the GDG

Recommendation 4

Health professionals should check that any commercial, community or self-help weight management programmes they recommend to patients meet best-practice standards (See recommendation 1, section 1.6.9.2).

Opinion of the GDG

1.7 Clinical recommendations

Note: **(Adult)** denotes a recommendation for adults only; **(Child)** denotes a recommendation for children only.

1.7.1 Generic principles of care

Adults and children

1.7.1.1 Regular, non-discriminatory long-term follow-up by a trained professional should be offered. Continuity of care in the multidisciplinary team should be ensured through good record keeping.

Adults

1.7.1.2 Any specialist setting should be equipped for treating people who are severely obese with, for example, special seating and adequate weighing and monitoring equipment. Hospitals should have access to specialist equipment – such as larger scanners and beds – needed when providing general care for people who are severely obese.

1.7.1.3 The choice of any intervention for weight management must be made through negotiation between the person and their health professional.

1.7.1.4 The components of the planned weight-management programme should be tailored to the person's preferences, initial fitness, health status and lifestyle.

Children

1.7.1.5 The care of children and young people should be coordinated around their individual and family needs and should comply with national core standards as defined in the Children's NSFs for England and Wales.

1.7.1.6 The overall aim should be to create a supportive environment that helps overweight or obese children and their families make lifestyle changes.

1.7.1.7 Decisions on the approach to management of a child's overweight or obesity (including assessment and agreement of goals and actions) should be made in partnership with the child and family, and be tailored to the needs and preferences of the child and the family.

1.7.1.8 Interventions for childhood overweight and obesity should address lifestyle within the family and in social settings.

1.7.1.9 Parents (or carers) should be encouraged to take the main responsibility for lifestyle changes for overweight or obese children, especially if they are younger than 12 years. However, the age and maturity of the child and the preferences of the child and the parents should be taken into account.

1.7.2 Identification and classification of overweight and obesity

1.7.2.1 Healthcare professionals should use their clinical judgement to decide when to measure a person's height and weight. Opportunities include registration with a general practice, consultation for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks.

Measures of overweight or obesity

Adults

1.7.2.2 Body mass index (BMI) should be used as a measure of overweight in adults, but needs to be interpreted with caution because it is not a direct measure of adiposity.

1.7.2.3 Waist circumference may be used, in addition to BMI, in people with a BMI less than 35 kg/m².

Children

1.7.2.4 BMI (adjusted for age and gender) is recommended as a practical estimate of overweight in children and young people, but needs to be interpreted with caution because it is not a direct measure of adiposity.

1.7.2.5 Waist circumference is not recommended as a routine measure but may be used to give additional information on the risk of developing other long-term health problems.

Adults and children

1.7.2.6 Bioimpedance is not recommended as a substitute for BMI as a measure of general adiposity.

Classification of overweight or obesity

Adults

1.7.2.7 The degree of overweight or obesity in adults should be defined as follows.

Classification	BMI (kg/m²)
Healthy weight	18.5–24.9
Overweight	25–29.9
Obesity I	30–34.9
Obesity II	35–39.9
Obesity III	40 or more

1.7.2.8 BMI may be a less accurate measure of adiposity in adults who are highly muscular, so BMI should be interpreted with caution in this group. Some other population groups, such as Asians and older people, have comorbidity risk factors that would be of concern at different BMIs (lower for Asian adults and higher for older people). Healthcare professionals should use clinical judgement when considering risk factors in these groups, even in people not classified as overweight or obese using the classification in recommendation 1.2.2.7.

1.7.2.9 Assessment of the health risks associated with overweight and obesity in adults should be based on BMI and waist circumference as follows.

BMI classification	Waist circumference		
	Low	High	Very high
Overweight	No increased risk	Increased risk	High risk
Obesity I	Increased risk	High risk	Very high risk
For men, waist circumference of less than 94 cm is low, 94–102 cm is high and more than 102 cm is very high For women, waist circumference of less than 80 cm is low, 80–88 cm is high and more than 88 cm is very high			

1.7.2.10 Adults should be given information about their classification of clinical obesity and the impact this has on risk factors for developing other long-term health problems.

1.7.2.11 The level of intervention to discuss with the patient initially should be based as follows:

BMI classification	Waist circumference			Comorbidities present
	Low	High	Very high	
Overweight				
Obesity I				
Obesity II				
Obesity III				

	General advice on healthy weight and lifestyle
	Diet and physical activity
	Diet and physical activity; consider drugs
	Diet and physical activity; consider drugs; consider surgery

Note that the level of intervention should be higher for patients with comorbidities (see section 1.7.3 for details), regardless of their waist circumference. The approach should be adjusted as needed, depending on the patient’s clinical need and potential to benefit from losing weight.

Children

1.7.2.12 BMI measurement in children and young people should be related to the UK 1990 BMI charts^{§§} to give age- and gender-specific information.

^{§§} The Guideline Development Group considered that there was a lack of evidence to support specific cut-offs in children. However, the recommended pragmatic indicators for action are the 91st and 98th centiles (overweight and obese, respectively).

1.7.2.13 Tailored clinical intervention should be considered for children with a BMI at or above the 91st centile, depending on the needs of the individual child and family.

1.7.2.14 Assessment of comorbidity should be considered for children with a BMI at or above the 98th centile.

1.7.3 Assessment

This section should be read in conjunction with the NICE guideline on eating disorders (*NICE clinical guideline* no. 9; available from www.nice.org.uk/CG009), particularly if a person who is not overweight asks for advice on losing weight.

Adults and children

1.7.3.1 After making an initial assessment (see recommendations 1.7.3.7 and 1.7.3.9), healthcare professionals should use clinical judgement to investigate comorbidities and other factors in 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.

1.7.3.2 Any comorbidities should be managed when they are identified, rather than waiting until the person has lost weight.

1.7.3.3 People who are not yet ready to change should be offered the chance to return for further consultations when they are ready to discuss their weight again and willing or able to make lifestyle changes. They should also be given information on the benefits of losing weight, healthy eating and increased physical activity.

1.7.3.4 Surprise, anger, denial or disbelief may diminish people's ability or willingness to change. Stressing that obesity is a clinical term with specific

health implications, rather than a question of how you look, may help to mitigate this.

During the consultation it would be helpful to:

- 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 and 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 patient has already tried and how successful this has been, and what they learned from the experience
- assess readiness to adopt changes
- assess confidence in making changes.

1.7.3.5 Patients and their families and/or carers should be given information on the reasons for tests, how the tests are performed and their results and meaning.

1.7.3.6 If necessary, another consultation should be offered to fully explore the options for treatment or discuss test results.

Adults

1.7.3.7 After appropriate measurements have been taken and the issues of weight raised with the person, an assessment should be done, covering:

- presenting symptoms and underlying causes of overweight and obesity
- eating behaviour
- comorbidities (such as type 2 diabetes, hypertension, cardiovascular disease, osteoarthritis, dyslipidaemia and sleep apnoea) and risk factors, using the following tests – lipid profile, blood glucose (both preferably fasting) and blood pressure measurement
- lifestyle – diet and physical activity
- psychosocial distress and lifestyle, environmental, social and family factors – including family history of overweight and obesity and comorbidities
- willingness and motivation to change
- potential of weight loss to improve health
- psychological problems
- medical problems and medication.

1.7.3.8 Referral to specialist care should be considered if:

- the underlying causes of overweight and obesity need to be assessed
- the person has complex disease states and/or needs that cannot be managed adequately in either primary or secondary care
- conventional treatment has failed in primary or secondary care
- drug therapy is being considered for a person with a BMI more than 50 kg/m²
- specialist interventions (such as a very-low-calorie diet for extended periods) may be needed, or
- surgery is being considered.

Children

1.7.3.9 After measurements have been taken and the issue of weight raised with the child and family, an assessment should be done, covering:

- presenting symptoms and underlying causes of overweight and obesity
- willingness and motivation to change
- comorbidities (such as hypertension, hyperinsulinaemia, dyslipidaemia, type 2 diabetes, psychosocial dysfunction and exacerbation of conditions such as asthma) and risk factors
- psychosocial distress, such as low self-esteem, teasing and bullying
- family history of overweight and obesity and comorbidities
- lifestyle – diet and physical activity
- environmental, social and family factors that may contribute to overweight and obesity and the success of treatment
- growth and pubertal status.

1.7.3.10 Referral to an appropriate specialist should be considered for children who are overweight or obese and have significant comorbidity or complex needs (for example, learning or educational difficulties).

1.7.3.11 In secondary care, the assessment of overweight and/or obese children and young people should include assessment of associated comorbidities and possible aetiology, and investigations such as:

- blood pressure measurement
- fasting lipid profile
- fasting insulin and glucose levels
- liver function
- endocrine function.

These tests need to be performed, and results interpreted, in the context of the degree of overweight and obesity, the child's age, history of comorbidities, possible genetic causes and any family history of metabolic disease related to overweight and obesity.

1.7.3.12 Arrangements for transitional care should be made for young people who are moving from paediatric to adult services.

1.7.4 Lifestyle interventions

The recommendations in this section deal with lifestyle changes for people actively trying to lose weight; recommendations about lifestyle changes and self-management strategies for people wishing to maintain a healthy weight can be found in section 1.1.1.

General

Adults and children

1.7.4.1 Multicomponent interventions are the treatment of choice. Weight management programmes should include behaviour change strategies (see recommendations 1.7.4.15–17) 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.

1.7.4.2 When choosing treatments, the following factors should be considered:

- the person's individual preference and social circumstance and the experience and outcome of previous treatments (including whether there were any barriers)
- their level of risk, based on BMI and waist circumference (see recommendations 1.7.2.9 and 1.7.2.11)
- any comorbidities.

1.7.4.3 The results of the discussion should be documented, and a copy of the agreed goals and actions should be kept by the person and the healthcare professional or put in the notes as appropriate. Healthcare professionals should tailor support to meet the person's needs over the long term.

1.7.4.4 The level of support offered should be determined by the person's needs, and be responsive to changes over time.

1.7.4.5 Any healthcare professional involved in the delivery of interventions for weight management should have relevant competencies and have undergone specific training.

1.7.4.6 Information should be provided in formats and languages that are suited to the person. When talking to patients and carers, healthcare professionals should use everyday, jargon-free language and explain any technical terms. Consideration should be given to the person's:

- age and stage of life
- gender
- cultural needs and sensitivities
- ethnicity
- social and economic circumstances
- physical and mental disabilities.

1.7.4.7 To encourage the patient through the difficult process of changing established behaviour, healthcare professionals should praise successes – however small – at every opportunity.

1.7.4.8 People who are overweight or obese, and their families and/or carers, should be given relevant information on:

- overweight and obesity in general, including related health risks

- realistic targets for weight loss; for adults the targets are usually maximum weekly weight loss of 0.5–1 kg^{***}
aim to lose 5–10% of original weight
- the distinction between losing weight and maintaining weight loss, and the importance of developing skills for both; the change from losing weight to maintenance typically happens after 6–9 months of treatment
- realistic targets for outcomes other than weight loss, such as increased physical activity, healthier eating
- diagnosis and treatment options
- healthy eating in general (see appendix D)
- medication and side effects
- surgical treatments
- self care
- voluntary organisations and support groups and how to contact them.

There should be adequate time in the consultation to provide information and answer questions.

1.7.4.9 If a person (or their family or carers) does not want to do anything at this time, healthcare professionals should explain that advice and support will be available in the future whenever they need it. Contact details should be provided, so that the person can make contact when they are ready.

Adults

1.7.4.10 The person's partner or spouse should be encouraged to support any weight management programme.

^{***} Based on the British Dietetic Association 'Weight Wise' Campaign. Greater rates of weight loss may be appropriate in some cases, but this should be undertaken only under expert supervision

1.7.4.11 The level of intensity of the intervention should be based on the level of risk and the potential to gain health benefits (see recommendation 1.7.2.11).

Children

1.7.4.12 Single-strategy approaches to managing weight are not recommended for children or young people.

1.7.4.13 The aim of weight management programmes for children and young people may be either weight maintenance or weight loss, depending on their age and stage of growth.

1.7.4.14 Parents of overweight or obese children and young people should be encouraged to lose weight if they are also overweight or obese.

Behavioural interventions

Adults and children

1.7.4.15 Any behavioural intervention should be delivered with the support of an appropriately trained professional.

Adults

1.7.4.16 Behavioural interventions for adults should include the following strategies, as appropriate for the person:

- 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.

Children

1.7.4.17 Behavioural interventions for children should include the following strategies, as appropriate for the child:

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

Although not strictly defined as behavioural techniques, giving praise and encouraging parents to role-model desired behaviours are also recommended.

Physical activity

Adults

1.7.4.18 Adults should be encouraged to increase their physical activity even if they do not lose weight as a result, because of the other health benefits physical activity can bring, such as reduced risk of type 2 diabetes and cardiovascular disease. Adults should be encouraged to do at least 30 minutes of at least moderate-intensity physical activity on 5 or more days a week. The activity can be in one session or several lasting 10 minutes or more.

1.7.4.19 To prevent obesity, most people should be advised they may need to do 45–60 minutes of moderate-intensity activity a day, particularly if they do not reduce their energy intake. People who have been obese and have lost weight should be advised they may need to do 60–90 minutes of activity a day to avoid regaining weight.

1.7.4.20 Adults should be encouraged to build up to the recommended levels for weight maintenance, using a managed approach with agreed goals.

Recommended types of physical activity include:

- activities that can be incorporated into everyday life, such as brisk walking, gardening or cycling
- supervised exercise programmes
- other activities, such as swimming, aiming to walk a certain number of steps each day, or stair climbing.

Any activity should take into account the person's current physical fitness and ability.

People should also be encouraged to reduce the amount of time they spend inactive, such as watching television or using a computer.

Children

1.7.4.21 Children and young people should be encouraged to increase their physical activity even if they do not lose weight as a result, because of the other health benefits exercise can bring, such as reduced risk of type 2 diabetes and cardiovascular disease. Children should be encouraged to do at least 60 minutes of at least moderate activity each day. The activity can be in one session or several lasting 10 minutes or more.

1.7.4.22 Children who are already overweight may need to do more than 60 minutes' activity.

1.7.4.23 Children should be encouraged to reduce sedentary behaviours, such as sitting watching television, using a computer or playing video games.

1.7.4.24 Children should be given the opportunity and support to do more exercise in their daily lives (such as walking, cycling, using the stairs and active play). The choice of activity should be made with the child, and be appropriate to their ability and confidence.

1.7.4.25 Children should be given the opportunity and support to do more regular, structured physical activity, such as football, swimming or dancing. The choice of activity should be made with the child, and be appropriate to their ability and confidence.

Dietary advice

Adults and children

1.7.4.26 Dietary changes should be individualised, tailored to food preferences and allow for flexible approaches to reducing calorie intake.

1.7.4.27 Unduly restrictive and nutritionally unbalanced diets should not be used, because they are ineffective in the long term and can be harmful.

1.7.4.28 People should be encouraged to improve their diet even if they do not lose weight, because there can be other health benefits.

Adults

1.7.4.29 The main requirement of a dietary approach to weight loss is that total energy intake should be less than energy expenditure.

1.7.4.30 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.

1.7.4.31 Low-calorie diets (1000–1600 kcal/day) may also be considered, but are less likely to be nutritionally complete.

1.7.4.32 Very-low-calorie diets (less than 1000 kcal/day) may be used for a maximum of 12 weeks continuously, or intermittently with a low-calorie diet (for example for 2–4 days a week), by people who are obese and have reached a plateau in weight loss.

1.7.4.33 Any diet of less than 600 kcal/day should be used only under clinical supervision.

1.7.4.34 In the longer term, people should move towards eating a balanced diet, consistent with other healthy eating advice.

Children

1.7.4.35 A dietary approach alone is not recommended. It is essential that any dietary recommendations are part of a multicomponent intervention.

1.7.4.36 Any dietary changes should be age appropriate and consistent with healthy eating advice.

1.7.4.37 For overweight and obese children and adolescents, total energy intake should be below their energy expenditure. Changes should be sustainable.

1.7.5 Pharmacological interventions

This section contains recommendations that update the NICE technology appraisals on orlistat and sibutramine (NICE technology appraisal guidance no. 22 and NICE technology appraisal guidance no. 31); see section 6 for details.

General: indications and initiation

Adults and children

- 1.7.5.1** Pharmacological treatment should be considered only after dietary, exercise and behavioural approaches have been started and evaluated.

Adults

- 1.7.5.2** Drug treatment should be considered for patients who have not reached their target weight loss or have reached a plateau on dietary, activity and behavioural changes alone.

- 1.7.5.3** The decision to start drug treatment, and the choice of drug, should be made after discussing with the patient the potential benefits and limitations, including the mode of action, adverse effects and monitoring requirements, and their potential impact on the patient's motivation. When drug treatment is prescribed, arrangements should be made for appropriate healthcare professionals to offer information, support and counselling on additional diet, physical activity and behavioural strategies. Information on patient support programmes should also be provided.

- 1.7.5.4** Prescribing should be in accordance with the drug's summary of product characteristics.

Children

- 1.7.5.5** Drug treatment is not generally recommended for children younger than 12 years.

The marketing authorisation for sibutramine has been suspended. See front cover for details.

1.7.5.6 In children younger than 12 years, drug treatment may be used only in exceptional circumstances, if severe life-threatening comorbidities (such as sleep apnoea or raised intracranial pressure) are present. Prescribing should be started and monitored only in specialist paediatric settings^{†††}.

1.7.5.7 In children aged 12 years and older, treatment with orlistat **or** **sibutramine** 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.

1.7.5.8 Orlistat **or sibutramine** should be prescribed for obesity in children only by a multidisciplinary team with expertise in:

- drug monitoring
- psychological support
- behavioural interventions
- interventions to increase physical activity
- interventions to improve diet.

^{†††} At the time of publication (December 2006), orlistat and sibutramine do not have UK marketing authorisation for use in children. Prescribers should be aware of the special considerations and issues when prescribing for children.

The marketing authorisation for sibutramine has been suspended. See front cover for details.

1.7.5.9 Orlistat and sibutramine should be prescribed for young people only if the prescriber is willing to submit data to the proposed national registry on the use of these drugs in young people (see also Section 8).

1.7.5.10 After drug treatment has been started in specialist care, it may be continued in primary care if local circumstances and/or licensing allow.

Continued prescribing and withdrawal

Adults and children

1.7.5.11 Pharmacological treatment may be used to maintain weight loss, rather than continue to lose weight.

1.7.5.12 If there is concern about the adequacy of micronutrient intake, 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).

1.7.5.13 People whose drug treatment is being withdrawn should be offered support to help maintain weight loss, because their self-confidence and belief in their ability to make changes may be low if they did not reach their target weight.

Adults

1.7.5.14 Regular review is recommended to monitor the effect of drug treatment and to reinforce lifestyle advice and adherence.

1.7.5.15 Withdrawal of drug treatment should be considered in people who do not lose enough weight (see recommendations 1.7.5.19 and 1.7.5.24 for details).

The marketing authorisation for sibutramine has been suspended. See front cover for details.

1.7.5.16 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. These goals should be agreed with the person and reviewed regularly.

Children

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

Orlistat

Adults

1.7.5.18 Orlistat should be prescribed only as part of an overall plan for managing obesity in adults who meet one of the following criteria:

- a BMI of 28.0 kg/m² or more with associated risk factors
- a BMI of 30.0 kg/m² or more.

1.7.5.19 Therapy should be continued beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment. (see also recommendation 1.7.5.16 for advice on targets for people with type 2 diabetes.)

1.7.5.20 The decision to use drug treatment for longer than 12 months (usually for weight maintenance) should be made after discussing potential benefits and limitations with the patient.

1.7.5.21 The coprescribing of orlistat with other drugs aimed at weight reduction is not recommended.

The marketing authorisation for sibutramine has been suspended. See front cover for details.

Sibutramine

Adults

1.7.5.22 Sibutramine should be prescribed only as part of an overall plan for managing obesity in adults who meet one of the following criteria:

- a BMI of 27.0 kg/m² or more and other obesity-related risk factors such as type 2 diabetes or dyslipidaemia
- a BMI of 30.0 kg/m² or more.

1.7.5.23 Sibutramine should not be prescribed unless there are adequate arrangements for monitoring both weight loss and adverse effects (specifically pulse and blood pressure).

1.7.5.24 Therapy should be continued beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment. (See also recommendation 1.7.5.16 for advice on targets for people with type 2 diabetes.)

1.7.5.25 Treatment is not currently recommended beyond the licensed duration of 12 months.

1.7.5.26 The coprescribing of sibutramine with other drugs aimed at weight reduction is not recommended.

1.7.6 Surgical interventions

This section updates the NICE technology appraisal on surgery for people with morbid obesity (*NICE technology appraisal guidance* no. 46); see section 6 for details.

The marketing authorisation for sibutramine has been suspended. See front cover for details.

Adults and children

1.7.6.1 Bariatric surgery is recommended as a treatment option for people with obesity if all of the following criteria are fulfilled:

- they have a BMI of 40 kg/m² or more, or between 35 kg/m² and 40 kg/m² and other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight
- all appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least 6 months
- the person has been receiving or will receive intensive management in a specialist obesity service
- the person is generally fit for anaesthesia and surgery
- the person commits to the need for long-term follow-up.

See recommendations 1.7.6.12 and 1.7.6.13 for additional criteria to use when assessing children, and recommendation 1.7.6.7 for additional criteria for adults.

1.7.6.2 Severely obese people who are considering surgery to aid weight reduction (and their families as appropriate) should discuss in detail with the clinician responsible for their treatment (that is, the hospital specialist and/or bariatric surgeon) the potential benefits and longer-term implications of surgery, as well as the associated risks, including complications and perioperative mortality.

1.7.6.3 The choice of surgical intervention should be made jointly by the person and the clinician, and taking into account:

- the degree of obesity
- 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.

1.7.6.4 Regular, specialist postoperative dietetic monitoring should be provided, and should include:

- information on the appropriate diet for the bariatric procedure
- monitoring of the person's micronutrient status
- information on patient support groups
- individualised nutritional supplementation, support and guidance to achieve long-term weight loss and weight maintenance.

1.7.6.5 Arrangements for prospective audit should be made, 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.

1.7.6.6 The surgeon in the multidisciplinary team should:

- have undertaken a relevant supervised training programme
- have specialist experience in bariatric surgery
- be willing to submit data for a national clinical audit scheme.

Adults

1.7.6.7 In addition to the criteria listed in 1.2.6.1, bariatric surgery is also recommended as a first-line option (instead of lifestyle interventions or

drug treatment) for adults with a BMI of more than 50 kg/m² in whom surgical intervention is considered appropriate.

1.7.6.8 In people for whom surgery is recommended as a first-line option, orlistat or sibutramine can be used to maintain or reduce weight before surgery if it is considered that the waiting time for surgery is excessive.

1.7.6.9 Surgery for obesity should be undertaken only by a multidisciplinary team that can provide:

- preoperative assessment, including a risk–benefit analysis that includes preventing complications of obesity, and specialist assessment for eating disorder(s)
- providing information on the different procedures, including potential weight loss and associated risks
- regular postoperative assessment, including specialist dietetic and surgical follow-up
- management of comorbidities
- psychological support before and after surgery
- providing information on, or access to, plastic surgery (such as apronectomy) where appropriate
- access to suitable equipment, including scales, theatre tables, Zimmer frames, commodes, hoists, bed frames, pressure-relieving mattresses and seating suitable for patients undergoing bariatric surgery, and staff trained to use them.

1.7.6.10 Surgery should be undertaken only after a comprehensive preoperative assessment of any psychological or clinical factors that may affect adherence to postoperative care requirements, such as changes to diet.

The marketing authorisation for sibutramine has been suspended. See front cover for details.

1.7.6.11 Revisional surgery (if the original operation has failed) should be undertaken only in specialist centres by surgeons with extensive

1.7.6.12 experience because of the high rate of complications and increased mortality.

Children

1.7.6.13 Surgical intervention is not generally recommended in children or young people.

1.7.6.14 Bariatric surgery may be considered for young people only in exceptional circumstances, and if they have achieved or nearly achieved physiological maturity.

1.7.6.15 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, and specialist assessment for eating disorder(s)
- information on the different procedures, including potential weight loss and associated risks
- regular postoperative assessment, including specialist dietetic and surgical follow-up
- management of comorbidities
- psychological support before and after surgery
- information on or access to plastic surgery (such as apronectomy) where appropriate
- access to suitable equipment, including scales, theatre tables, Zimmer frames, commodes, hoists, bed frames, pressure-relieving mattresses and

seating suitable for patients undergoing bariatric surgery, and staff trained to use them.

1.7.6.16 Surgical care and follow-up should be coordinated around the young person and their family's needs and should comply with national core standards as defined in the Children's NSFs for England and Wales.

1.7.6.17 All young people should have had a comprehensive psychological, education, family and social assessment before undergoing bariatric surgery.

1.7.6.18 A full medical evaluation including genetic screening or assessment should be made before surgery to exclude rare, treatable causes of the obesity.

2 Development of the guidance

2.1 Public health and clinical context

2.1.1 Rationale for integrated clinical and public health guidance

In 2003, the then National Institute of Clinical Excellence and Health Development Agency (HDA) were commissioned by the Department of Health and the National Assembly for Wales to develop guidance on the prevention and management of obesity in children and adults. This was the first time NICE had been tasked to work in collaboration with an external body. Crucially, it was also the first time that the applicability of existing NICE methodology to public health evidence and recommendations was to be fully considered. Since April 2005, with the transfer to NICE of the functions of the HDA and the creation of the new Centre for Public Health Excellence (CPHE) within the Institute, the audiences for NICE guidance have extended beyond the National Health Service (NHS). Yet even before April 2005, NICE and the HDA shared audiences inside and outside the NHS, because their work programmes concerned interventions at different stages in the evolution of the same diseases and conditions. Public health and clinical audiences share the same need for evidence-based solutions to the challenges they face in their day-to-day practice as well as to inform policies and strategies that lead to health improvement. Obesity is a prime example of a condition where complementary clinical and public health guidance are essential to address the hazy divisions between prevention and management and the sliding scale of risk. The opportunities to intervene therefore include population-wide initiatives to support healthy lifestyles and prevent ill health, as well as interventions targeted at vulnerable groups, through to individual lifestyle advice on prevention and management in the clinical setting.

The 2004 Wanless report 'Securing good health for the whole population'³¹ highlighted that a step change will be required to lift us on to the 'fully engaged' trajectory to reduce preventable illness and deaths from diseases such as obesity, which would lead to the greatest reduction in future healthcare costs. Apart from a more effective delivery framework for health service providers nationally and locally, the report stressed an

enhanced role for schools, local authorities and other public sector agencies, employers, and private and voluntary sector providers in developing opportunities for people to play their part in securing better health. Crucially, the report considered that there was no reason why the cost effectiveness of prevention interventions should not be assessed in the same way as disease-management strategies. The analysis would allow commissioners of services to compare the relative merits of prevention and treatment strategies, and would allow them to develop a business case for purchasing a balanced portfolio of interventions.³²

Littlejohns and Kelly have highlighted that the new responsibilities of NICE mean that, for the first time, there is the opportunity to assess the comparative value of multiple approaches to improving specific health issues, and it is hoped that the public health recommendations in NICE guidance can also re-emerge as an integral component of clinical practice, at the same time ensuring that public health practice, based on sound evidence, infuses through lifestyle decisions by people and those responsible for the environment in which they live. Such an approach is vital for tackling obesity. With over half of the population now known to be either overweight or obese, addressing the problem of obesity through primary care management alone is likely to be impossible. Based on around 20% of the adult population being obese and around 50% overweight, it has been extrapolated that in a typical population of 100,000 there will be about 30,000 adults of working age who need help with weight management.³³

Furthermore, although it is clear that there is no simple – or single – solution, it is likely that the most effective strategies for prevention and management will share fundamental approaches and the clinical management of obesity cannot be viewed in isolation to the ‘obesogenic’ environment in which people live.

The inequalities that are seen in many aspects of health and illness are all too apparent in relation to obesity, where social determinants play a key role in the choices that individuals are able to make concerning their diet and activity. This guidance highlights interventions to identify populations that are vulnerable to the risk factors for obesity, as well as individuals who are at greater risk for weight gain at particular life stages. As

such, the recommendations refer to the need for interventions to be tailored both to different populations and to individual circumstances. However, relatively little is known about the differential effectiveness of interventions in tackling obesity among different vulnerable groups, hence the focus for one of the research recommendations.

2.2 Who is the guidance for?

The guidance covers the care provided by NHS health professionals working with overweight and obese adults and children in primary, secondary and, where appropriate, tertiary care (specialised morbid obesity services). The guidance also addresses areas that require collaboration between primary, secondary and tertiary care. Of course, the role of NHS staff in prevention and health promotion forms a key component too.

In line with the remit of the CPHE within NICE, the guidance also covers a broad range of non-NHS settings including local authorities, government agencies, schools and private and voluntary organisations. Some recommendations have also been made for individuals, recognising that although body weight and weight gain are influenced by many factors, including genetics and the environment in which people live, the individual choices people make will influence whether they are able to maintain a healthy weight.

The integrated nature of the guidance is fundamental. In particular, clinicians should not ignore the public health aspects of the guidance and all audiences should note the importance of multidisciplinary teams and partnerships working for the effective implementation of the recommendations.

2.3 Structure of the guidance documentation

The guidance is divided into sections which cover in detail specific topics relating to the public health and clinical management of overweight and obesity. The recommendations are presented in the executive summary only (Section 1, Chapter 1). The recommendations are supported by summary evidence statements which provide the basis on which the Guidance Development Group made its recommendations. A narrative review of the evidence base is provided (including the health economic

evidence) in sections 2-6 and detailed evidence tables are annexed. Important general methodological issues are flagged as appropriate.

2.4 Scope

The guidance was developed in accordance with the scope prepared by the Institute, the HDA and National Collaborating Centre for Primary Care (NCC-PC), and published by the Institute in 2004 (see Appendix 1). The scope sets the remit of the guidance – specifying those aspects of obesity prevention and management to be included and excluded – and is outlined below.

2.4.1 Population groups

2.4.1.1 Groups that are covered

This guidance covers adults and children aged 2 years or older, either a healthy weight, overweight or obese. This includes adults and children with established comorbidities, and those with or without risk factors for other medical conditions. The following special groups are considered, where there is good evidence of effectiveness of interventions targeted at these groups:

- black and minority ethnic groups
- lower socioeconomic groups
- vulnerable groups, including older people and women of child-bearing age.

2.4.1.2 Groups that are not covered

- Children aged less than 2 years.
- The medical management of related medical conditions. However, links will be made to other appropriate NICE guidance, such as that for type 2 diabetes and eating disorders.

2.4.2 Areas covered

2.4.2.1 *Clinical management of overweight and obesity in adults and children aged 2 years or older*

(i) The identification of overweight and obesity in adults and children in primary and secondary care. This includes advice on the following;

- The best way to discuss weight in the clinical setting.
- The role of body mass index (BMI) and waist circumference as a method of measuring overweight and obesity, including an appropriate definition of overweight and obesity.
- The role of serial measurements of height and weight in the clinical setting.

(ii) The assessment of overweight and obesity in adults and children in primary and secondary care. This includes advice on the following:

- Assessment of any weight-related comorbidities (for example, diabetes, coronary heart disease), including the adult's or child's clinical need to lose weight.
- Assessment of risk factors strongly associated with overweight and obesity.
- Determining the adult's or child's readiness and motivation to try to lose weight.
- Consideration of lifestyle factors that are likely to explain why energy imbalance has occurred, including weight control history, usual dietary habits and physical activity levels.

(iii) The management of overweight and obesity in adults and children in primary and secondary care. This includes advice on the following:

- How practitioners should develop goals and treatment strategies with the adult or child with overweight or obesity (and their parent/family as appropriate). This will include, as appropriate, the goal of weight maintenance as well as weight loss.

- The role of non-pharmacological interventions. Where there is good evidence of effectiveness, the following interventions are considered:
 - dietary advice including the role of low-fat, low-carbohydrate and very-low-energy diets, the role of meal replacements and the role of ‘slimming clubs’
 - physical activity
 - psychological therapies
 - professionally organised alternative therapies.^{###}
- The role of pharmacological interventions. This is limited to orlistat and sibutramine. These are currently the only anti-obesity drugs listed in the ‘British national formulary’ and available on prescription. The guidance updates the current NICE technology appraisals for these agents and when the final guidance has been published the technology appraisals will be withdrawn.
 - National Institute for Clinical Excellence (2001). ‘Guidance on the Use of Orlistat for the Treatment of Obesity in Adults’. *NICE technology appraisal* no. 22.
 - National Institute for Clinical Excellence (2001). ‘Guidance on the Use of Sibutramine for the Treatment of Obesity in Adults’. *NICE technology appraisal* no. 31.

Note that guidance recommendations will fall within licensed indications: exceptionally, and only where clearly supported by evidence, can use outside a licensed indication be recommended. The guidance will assume that prescribers will use the Summary of product characteristics to inform their decisions for individual patients.

^{###} These are defined as: acupuncture, chiropractic, herbal medicine, homeopathy and osteopathy (Select Committee on Science and Technology Sixth Report . London: The UK Parliament [House of Lords], 2000).

(iv) Morbid obesity in adults (BMI > 40 kg/m²) and children will be discussed in sufficient detail to inform primary and secondary care practitioners on best practice for referral to tertiary care (specialised morbid obesity services) and to identify key aspects of care for people with morbid obesity in tertiary centres. The following aspects of care will be considered:

- The identification of morbid obesity in adults and children in primary and secondary care.
- The criteria that should be used to determine when adults and children with morbid obesity should be referred to tertiary care.
- The assessment of morbid obesity in adults and children in tertiary care, including a health risk assessment based on presence of comorbidities.
- The management of morbid obesity in adults and children in tertiary care, including the role of an integral management approach aimed at weight loss and weight maintenance. The role of surgical treatment of morbid obesity will be addressed. The guidance will update the NICE technology appraisal on the use of surgery; when the guidance has been published the technology appraisal will be withdrawn.
 - National Institute for Clinical Excellence (2002). 'Guidance on the Use of Surgery to Aid Weight Reduction for People with Morbid Obesity'. *NICE technology appraisal* no. 46.
- The prevention of overweight and obesity in adults and children aged 2 years or older, who are currently of a healthy weight.

(v) The role of primary prevention approaches intended to support adults and children in maintaining a healthy weight. These approaches will be aimed mainly outside the clinical setting and include advice on the following:

- Raising awareness of what constitutes a healthy weight range and the need to stay within such a range.

- Identifying adults and children who should participate in prevention programmes based on their risk factors for obesity and readiness and opportunities to change their behaviour.
- Maintaining energy balance in adults and children of a healthy weight through a healthy diet and physical activity.
- Developing local strategies to prevent obesity and support weight maintenance in adults and children of a healthy weight. These will focus on multicomponent interventions including:
 - community-based services including those to which people are referred from primary care services
 - broader environmental interventions in the community
 - interventions in workplaces
 - interventions in schools
 - interventions targeted at children aged 2–5 years
 - interventions targeted at black and minority ethnic groups, at vulnerable groups and at individuals at vulnerable life stages.

2.4.3 Areas not covered

The guidance does not cover the following areas of clinical practice:

- Population-based screening programmes for overweight or obesity.
- Complementary therapy approaches to the treatment of overweight and obesity that are not included in the definition of ‘professionally organised alternative therapies’.
- Eating disorders, including binge-eating disorder.

- In adults and children, the prevention or management of comorbidities (for example, type 2 diabetes) associated with overweight or obesity.
- In children, the diagnosis and management of childhood syndromes (for example, Prader–Willi syndrome) or childhood diseases (for example, hypothyroidism) that lead to obesity.
- In terms of prevention of overweight and obesity, the guidance will contribute to the evidence base leading to subsequent recommendations in national government or European policies, including fiscal policy, food labelling policy and food advertising and promotion. The guidance is intended to support local practice whereas national or ‘upstream’ action will be addressed in the context of wider work, as outlined in the ‘Choosing health’ White Paper.

2.5 Plans for guidance revision

The process of reviewing the evidence is expected to begin 4 years after the date of issue of this guidance. Reviewing may begin before this if significant evidence that affects the guidance recommendations is identified. The updated guidance will be available within 2 years of the start of the review process. However, please note that this process is currently under review and may change following consultation.

3 Obesity

3.1 Introduction

Obesity and overweight have been dubbed a ‘global epidemic’ by the World Health Organization (WHO).³⁴ Obesity should not be considered to be simply a consequence of an unhealthy lifestyle: it is a condition in which weight gain has reached the point where it poses significant risks to health. Obesity may be considered as a disease and a risk factor for other diseases. In adults, obesity is associated with an increased risk of diseases that are a major cause of morbidity and mortality, notably type 2 diabetes, coronary heart disease (CHD), hypertension, many cancers and osteoarthritis (Table 3.1).

Table 3.1 Relative risk of other diseases in obese adults

Disease	Relative risk	
	Women	Men
Type 2 diabetes	12.7	5.2
Hypertension	4.2	2.6
Heart attack	3.2	1.5
Colon cancer	2.7	3
Angina	1.8	1.8
Gall bladder disease	1.8	1.8
Ovarian cancer	1.7	
Osteoarthritis	1.4	1.9
Stroke	1.3	1.3

Source: National Audit Office. Tackling obesity in England. London: The Stationery Office, 2001.

In children and teenagers, the associated morbidities include hypertension, hyperinsulinaemia, dyslipidaemia, type 2 diabetes, psychosocial dysfunction, and exacerbation of existing conditions such as asthma. However, in children the persistence of obesity into adulthood is the most important concern; the risk of persistence increases with increasing age of the child and severity of obesity.

There are strong cultural pressures for both children and adults, particularly girls and women, to remain slim, and overweight and obesity may also have psychosocial penalties,³⁷ especially for children, who may be bullied as a consequence of their obesity.

It is therefore unsurprising that obesity imposes a considerable economic burden. The Health Select Committee (HSC)³³ reported that the cost of obesity in England is between £3.3 and £3.7 billion per year. This figure is 27% to 42% higher than the previous estimate by the National Audit Office (NAO)³⁵ due to higher NHS and drug costs, the availability of more accurate data, the inclusion of comorbidities and increased prevalence of obesity. The HSC estimate includes £49 million for treating obesity, £1.1 billion for treating the consequences of obesity, and indirect costs of £1.1 billion for premature death and £1.45 billion for sickness absence. The cost of obesity plus overweight is estimated between £6.6 and £7.4 billion per year.

The fundamental cause of overweight and obesity is 'energy imbalance'; without periods of increased energy intake and/or decreased physical activity, a person will not gain weight, no matter what their genetic make up. However, the causes of this energy imbalance, which result in weight gain, remain unclear. It has been hypothesised that numerous behavioural, psychological, social and environmental factors determine the increasing prevalence of obesity seen throughout the world. Small, virtually unnoticeable changes in lifestyle can result in significant weight gain: just 50–60 calories a day in excess – from increased calorie intake and/or reduced physical activity – can result in over 2.4 kg increase in weight at the end of a year.^{33,34{4625}}.

The tendency for weight gain to occur over extended periods of time (years or decades for most people) means that it may go virtually unnoticed until a person is already overweight or obese and showing signs of associated comorbidities. Similarly there is some evidence that parents may fail to recognise excess weight gain and obesity in their children as overweight and obesity become more common in society.³⁶

Weight gain resulting in overweight and obesity is associated with increased health risk, and intentional weight loss reduces morbidity and mortality.³⁷ However, whereas it can

be easy to gain body weight, considerable effort may be required to lose it. For adults to lose 1 kg of fat requires an energy deficit of around 7000 calories. Therefore, to lose 0.5–1 kg per week would require an energy deficit of between 500 and 1000 calories per day.

It is unusual for an obese person to seek medical help in the first instance;³⁷ they are likely to have tried an array of 'self-help' measures before approaching a health professional. The search for the most successful – or most fashionable – means of losing weight or preventing weight gain, is never ending and has become big business. Entering obesity into 'Google' results in more than 35 million hits; there are few health topics where there is greater media interest, conflicting advice, self-help manuals, popular myths, mis-information and unsubstantiated celebrity endorsements.

3.2 Prevalence

In adults, body mass index (BMI, kg/m²) is frequently used as a measure of overweight and obesity, with overweight being defined as a BMI 25–29.9 kg/m² and obesity as a BMI equal to or greater than 30 kg/m². Epidemiological surveys of England indicate that the prevalence of overweight and obesity in adults has trebled during the past 25 years. In 1980, 8% of adult women and 6% of adult men were classified as obese; by 2004³⁸ this had increased to approximately 24% of men and women, with a further 46% of men and 35% of women being overweight. Therefore, around two-thirds of men and women, almost 24 million adults, were either overweight or obese in 2004. Furthermore, 0.9% of men and 2.6% of women are classified as morbidly obese, with BMIs over 40 kg/m².³⁸

In adults, central adiposity is frequently measured by waist circumference, with raised waist circumference defined as equal to or greater than 102 cm in men and equal to or greater than 88 cm in women. In 2004, approximately 31% of men and 41% of women were classified as having a raised waist circumference.³⁸

The NAO³⁵ summarised that the prevalence of obesity:

- increases with age
- is more prevalent among lower socioeconomic and lower-income groups, with a particularly strong social class gradient among women
- is more prevalent among certain ethnic groups, particularly among African Caribbean and Pakistani women
- is a problem across all regions in England but shows some important regional variations.

Adults at greater risk of becoming obese also include those who were previously overweight and who have lost weight; smokers who have stopped smoking and those who change from an active to an inactive lifestyle.³⁷

In children, the prevalence of obesity (defined as a BMI above the 95th percentile) is also rising. The latest figures¹⁰ suggest that over 16% of boys and girls aged 2–15 years were obese compared with 10% of boys and around 12% of girls in 1995. A further 14% of boys and girls were estimated to be overweight (defined as a BMI between the 85th and 95th percentiles) compared with around 13% of males and females in 1995. There are social inequalities in the prevalence of obesity in children¹⁰ and children with at least one overweight or obese parent are at greater risk of obesity.³⁷

Children's weight tends to 'track' from childhood to adulthood and children who are overweight or obese are at greater risk of being obese in adulthood. Although obesity in childhood is an important risk factor for adult obesity, the majority of obese adults were not obese children. This suggests that factors throughout the life course have an impact on the development of obesity.³⁹

Epidemiological studies suggest that there are critical periods in the life course when weight gain is greatest and may be associated with excess weight gain. These include:

- Prenatal period – research by Jackson and coworkers,⁴⁰ among others, suggests that fetal nutrition has permanent effects on later growth, body shape, fatness and energy regulation.
- Rapid growth in infancy.⁴¹
- Adiposity rebound – a rapid period of growth and increase in BMI between the ages of 5 and 7 years which may lead to increased risk of obesity later in life (for example, Rolland-Cachera and coworkers,⁴² Prokopec and coworkers⁴³). In this period children are also exposed to new environments and patterns of behaviour which have an effect on food and activity patterns.
- Adolescence – tends to be associated with increased autonomy when individuals may have irregular meals, changed food habits and periods of inactivity during leisure combined with physiological changes which promote increased fat deposition, particularly in girls.⁴⁴
- Young adulthood – often correlates to a period of reduced physical activity. For men and women this occurs at different times. In women this usually occurs between the ages of 15 and 19 years but in men it maybe as late as when they are in their early thirties).⁴⁵
- Pregnancy – although on average, women gain less than 1 kg after each pregnancy, excessive weight gain during pregnancy may result in retention of weight gain after the baby is born, particularly with early cessation of breastfeeding (see for example, Williamson and coworkers⁴⁶).
- Menopause – tends to be associated with weight gain, particularly around the abdomen (see for example, Williamson and coworkers⁴⁶). Hormonal changes are thought to be partly responsible for the increased susceptibility to weight gain during the menopause, although the exact process is not fully understood and changes have also been attributed to changes in metabolism and reduced physical activity levels.

3.3 Existing service provision

There is considerable variability in the management of overweight and obese people in the NHS. In 2001, the NAO³⁵ identified no central guidance on the management of obesity and, at local level, only 28% of health authorities had taken action to address obesity as a health problem. It was also noted that primary care played an important role in the management of obesity but that general practitioners (GPs) and practice nurses used a wide range of methods to manage overweight and obese patients and many were uncertain as to which interventions were most effective. A more recent survey by Dr Foster in 2005⁴⁷ on obesity management services found that although there appeared to be an increased willingness to address the problem of obesity, the provision of services remained limited and inconsistent. Despite 55% of primary care organisations (PCOs) believing that prevention and treatment of obesity was a top priority, only 31% had established a weight management clinic. The report found that PCOs have developed a number of innovative approaches to the management of obesity, including partnerships with local authority and commercial weight loss organisations, but there is considerable regional variation in service provision.

The prevalence of obesity was not monitored by 76% of PCOs. The majority did not allocate specific funds to obesity prevention and management. Only a minority of PCOs were able to estimate the amount of money spent on obesity prevention and treatment; and when they were, the amounts were shown to be low. In 15% of PCOs, the service was provided by privately managed services such as slimming clubs, dietary advice, leisure services and independent dietitians.

The majority of PCOs do not monitor the effectiveness of interventions for obesity. Just 19% monitor outcomes for surgery, 39% drug treatment, 45% weight loss and 15% for other interventions including dietetic and nutrition, physical activity programmes and exercise on prescription. Moreover, 91% offer exercise on prescription and 59% advice on 'healthy shopping'.

There is also some evidence that health professionals may question their own ability to motivate patients to change behaviour and their patients ability to change. Garrow and

Summerbell³⁷ have noted that most GPs have had little or no training on how to manage obesity.

3.3.1 Multidisciplinary approach and partnership working

The NAO in 2001³⁵ also highlighted the need for joint working with different agencies to facilitate cross-government initiatives to prevent obesity at both national and local level and the need to consider the broader environment in terms of its potential to support behavioural change. As the key representative for health in local strategic partnerships, primary care trusts (PCTs) in England and local health boards in Wales have a role to play that goes beyond the clinical setting and extends into the wider community through work in schools, workplaces and neighbourhoods.

In 2006, the Audit Commission, the Healthcare Commission and the National Audit Office published *Tackling Child Obesity – First Steps*. This contains a number of recommendations directed at local authorities and their partners.

3.4 Key public health audiences and settings

3.4.1 General public

Although body weight and weight gain are influenced by many factors, including genetics and the environment in which we live, research shows that the individual choices people make may influence whether or not they are able to maintain a healthy weight. Furthermore, the lifestyle choices associated with a healthy weight are likely to have wider health benefits – such as reducing the risk of heart disease and some cancers.

3.4.1.1 Awareness

The NAO in 2001³⁵ found that around half of GP surgeries made information about the weight management available to all patients, usually via leaflets or information displays in the waiting room, and three-quarters provided information on physical activity and healthy eating. Despite this, there is some evidence that the general public may not

always recognise a healthy weight³⁶ or appreciate the health risks of obesity.⁴⁸ Furthermore, although surveys suggest that most people know what constitutes a healthy diet, few are putting this information into practice).^{49,50} Similarly, the 'Active for life' campaign during the 1990s found that while the campaign increased awareness of the moderate activity message this did not appear to be translated into action⁵¹

However, a lack of awareness of an issue may not be the main barrier to people changing their behaviour. 'Choosing health' recognises that health messages can be inconsistent or 'out of step' with the way people live their lives.² The HSC enquiry into obesity probed a range of experts into 'why the message was not getting through'.³³ The multifactorial nature of obesity and the complex factors involved in determining individual's health behaviours were apparent in the evidence gathered by the committee. Factors such as the cost of a healthy diet, lack of cooking skills, the opportunity to be physically active in a safe environment, and the effects of foods advertising were all given as examples of factors that contributed to individuals not being able to maintain a healthy weight.

The benefit of interventions that are designed to provide information alone has been questioned by health professionals – and certainly few health education campaigns over the past decade have relied on imparting information alone.

This guidance predominantly focuses on interventions which are locally led. However, in assessing the effectiveness of interventions to raise awareness, it is not always possible to delineate between those which are nationally or locally led. For example, a national mass media of short duration may be intended to provide a focus for the ongoing work of local health professionals. In addition, it is not always possible to separate out the effects of the awareness raising element of a broader-based intervention from the effects of other aspects of the same intervention.

3.4.1.2 'Self-help' and non-clinical management of overweight and obesity

The most recent national diet and nutrition survey of adults aged 19–64 years,⁵⁰ found that 24% of women and 10% of men were dieting to lose weight, and the survey of young people⁵² found that 16% of girls aged 15–18 years were trying to lose weight.

It is unusual for an overweight or obese person to seek medical help in the first instance³⁷ – they are likely to have tried an array of ‘self-help’ measures to manage their weight before approaching a health professional. Furthermore, although studies have shown that the most trusted source of nutrition information is their GP, most consumers get their nutrition information through the media.⁵³

Diet and weight management has for many years been an area of intense media interest. The proliferation of different diet, fitness and weight loss regimens – which are widely marketed and often sponsored by or attributed to various celebrities, coupled with the relatively recent development of e-technologies such as the internet, hand-held computers, and mobile phones and interactive television – has made access to information on diet and weight loss widely available. The quality and reliability of some of the information available through the media can sometimes be a cause for concern to health professionals.

‘Self-help’ strategies may include:

- slimming clubs – including commercial programmes and local not-for-profit groups based in local settings such as churches or community centres
- interactive programmes using new technologies (including web, interactive television and mobile phones)
- specifically formulated weight loss products such as meal replacements and low-calorie’ meals and snacks
- popular diet books and magazines
- one-to-one counselling/coaching by dietitians, nutritional therapists, exercise specialists, personal trainers
- alternative therapies (such dietary supplements, hypnosis, acupuncture, homeopathy).

The quality of the advice and support provided by these approaches, the cost to the individual and ultimately the impact on long-term weight management varies tremendously. The fact that many users of such interventions self-refer and self-manage their weight, and do so in the absence of a health professional, means that some of the interventions above are unlikely to be widely evaluated or be the subject of good-quality research. However, there are increasingly examples of health professionals using traditional 'self-help' strategies to address the management of overweight and obesity in the local population. For example, a GP or practice nurse may formally 'refer' patients to an exercise programme at a local sports centre, informally recommend a commercial slimming club, and/or run or support a weight management programme based in a community health centre or workplace.

3.4.2 Pre-school children

The pre-school years are not only critical for physical and emotional development, they are also likely to be important for learning attitudes and practices related to healthier lifestyles.⁵⁴ Lifelong habits which can have an impact on an individual's ability to maintain a healthy weight may be established during the pre-school years.

The family environment has a tremendous influence on a child's development, their eating and activity habits, and predisposition to overweight.⁵⁵⁻⁵⁷ Similarities within families are documented in relation to eating and exercise behaviour and body weight.⁵⁵ This clustering of family characteristics suggests the value of the family as a critical unit upon which obesity prevention and intervention strategies can be developed. For example, the nutrient quality of the diets of 2-5-year-old children is influenced by the eating patterns of their parents.⁵⁸ Children's eating behaviours are influenced by the family food environment, including parental food preferences and beliefs; children's food exposure; role modelling; media exposure and child/parent interactions around foods.^{56,59,60} Similarly, children's activity levels will be strongly influenced by, for example, parental decisions on car use and walking, family television viewing habits, leisure time activities.

Although parents are primarily responsible for their child's nutrition and activities, child care providers can also play an important role by providing opportunities for children to be active and develop healthy eating habits and by acting as important role models. Crucially, a child's positive experience in childcare outside the home may influence their behaviours in the home and thus help promote healthy lifestyles to the family as a whole.⁶¹

Assessing the diet and activity levels of young children is not straight forward, particularly due to concerns of bias from self-reported measures. Young children find it difficult to recall food intake and physical activities, potentially lead to mis-reporting. For very young children, the use of parents or carers to provide reports may also introduce error – in particular, they may over report intakes in an aim to give 'socially desirable' responses. The data available suggest that trends in children's diet and activity levels may be placing them at risk of excess weight gain and obesity.

In relation to activity, approximately two-thirds of boys and girls aged 2–5 years achieve at least 60 minutes moderate intensity physical activity each day.¹⁰ However, there are many current threats to children's activity levels, including greater access to computers and television and other sedentary activities and parental reliance on car use and reluctance to allow outdoor play.

By 5 years of age children should be consuming a diet consistent with the population dietary recommendations for adults. Between the ages of 2 and 5 years a flexible approach to the timing and extent of dietary change should be taken.⁵ However, the National Diet and Nutrition Survey⁶² found that the diets of children aged 1.5–4.55 years were generally less than ideal, for example, children tended to have low intakes of fruit and vegetables (particularly children from lower-income and one parent families) and high intakes of added sugars (18.7%).

3.4.3 Schools

The school years are known to be a key stage in the life course for shaping attitudes and behaviours. Indeed life-long habits which can have an impact on an individual's ability to maintain a healthy weight may be established during the school years. All

school policies have the potential to have some impact on a child's ability to maintain a healthy weight, eat a healthy diet and be physically active. These range from the school selection processes themselves (which may determine whether a child can walk or cycle to school), to the curriculum content, school food policies, training opportunities for all school staff, engagement with wider community and the extent to which national policies are implemented.

School-aged children's diet and activity practices are less than ideal. In 2002, around 70% of boys and 61% of girls aged 2–15 years were active for at least an hour a day.¹⁰ Participation in physical activity in girls begins to decline at age 10 years and that by the age of 15 years the level of recommended physical activity was only achieved by 50% of girls. The number of children who travel to school by car has doubled over the past 20 years, with a corresponding fall in those who walk or cycle.⁶³ In terms of diet, fewer than half school-aged children meet the dietary recommendation for total fat intake and only 8% the recommendation for saturated fat intake. Over half exceed the maximum recommended salt intake and only 15% meet the maximum recommended intake for added sugars. On average, children eat two portions of fruit and vegetables each day, compared with the recommended five, with those from low-income households consuming half the amount of those in the highest-income households.⁵²

Addressing obesity (and wider health issues) in children and young adults is a major focus of government policy. There is a national target to halt the year on year increase in obesity in children aged under 11 years, as part of a broader strategy to reduce obesity in the population as a whole. This target will contribute to the government's overarching strategy for children, 'Every child matters: change for children' which aims to allow every child, whatever their background or circumstances, to have the support they need to be healthy, stay safe, enjoy and achieve, make a positive contribution, and achieve economic well-being.

Recognising the importance of introducing good dietary and activity habits early in life and the opportunity the school environment provides, a raft of government policy

initiatives and interventions which aim to improve children's diets and activity levels have been introduced in recent years. These include:

- **The National Healthy Schools Programme:** promotes a 'whole-school approach' to specific health themes within schools; with all participating school now having to work on healthy eating and physical activity.
- **The Food in Schools Programme:** good practice guidance for schools wishing to implement the various initiatives which can contribute to a whole-school approach to promoting healthy eating.
- **The School Fruit and Vegetable Scheme:** entitles all 4–6-year-olds in local education authority (LEA)-maintained infant, primary and special schools in England, to a free piece of fruit or vegetable on each school day.
- **School meals:** Nutritional standards due 2006 and from 2005 part of Ofsted inspection on healthy eating in schools.
- **School travel plans:** By 2010, all schools will be required to have active travel plans which aim to reduce car use and encourage children and their parents to walk or cycle to school where possible.
- **Physical education (PE) and sport in schools and beyond –** There is a national target to increase the percentage of children spending a minimum of 2 hours each week in high-quality PE and sport both in and outside school hours, from 25% in 2002 to 75% in 2006 and 85% in 2008.
- **Extended schools:** offering 'wraparound childcare' in the form of breakfast and after-school clubs (including, for example, cooking, sports, physical activities).
- **School nurses/personal health plans:** 'Choosing health' makes a commitment to extend the role of the school nurse and dietitians, so that families and young people can access individual support and advice to promote healthy eating and physical activity and to prevent obesity.

Although some of these initiatives are relatively new, others have been in development, or operating for several years. Some have been trialled as part of the development process for these government-based initiatives and others have been operating independently as part of ongoing health promotion activities or as part of research programmes.

3.4.4 Workplace

In addition to fundamental health and safety policies, the workplace has considerable potential for addressing wider public health issues, such as obesity. In 1986, the WHO⁶⁴ identified the workplace as a key setting for health promotion (along with cities, neighbourhoods and schools). The workplace has potential as a setting for improving the health of the adult population because of:

- ease of access to a large number of people
- a potentially low level of attrition as the population is relatively stable
- cohesion of the working community which can offer benefits such as peer support
- established channels of communication which can be used to publicise programmes, encourage participation and provide feedback.

More recently, 'Choosing health'² set out a range of the action that employers, employees, government and others can take to extend healthy choices in the workplace by:

- reducing barriers to work to improve health and reduce inequalities through employment
- improving working conditions to reduce the causes of ill health related to work
- promoting the work environment as a source of better health.

The workplace may have an impact on an individual's ability to maintain a healthy weight both directly, by supporting an individual to make healthier choices (for example,

by the provision of healthier food choices in on-site vending machines, providing changing and shower facilities), and indirectly, through the overall culture of the organisation (for example, through appropriate policies and incentive schemes).

Although addressing obesity is not a core aim of workplaces, taking action may result in significant benefit for employers as well as employees. Collaboration with local employers as part of the local strategic partnership (LSP) will enable the development of appropriate targeted work in this area. There is also potential to have a local area agreement target addressing a reduction in days lost through sickness absence.

The UK workforce

- Among 16–74-year-olds in England and Wales 41% work full time and 12% work part time, and 8% are self-employed and 3% are unemployed. The NHS is the largest employer in the UK with 1.3 million staff. Most employees (12.5 million) work in small- or medium-sized enterprises (employing 5–249 people).⁶⁵
- Most people travel to work by car (61%, including passengers). Around 14% of people use public transport (bus, train, etc) to travel to work. Only a minority walk (10%) or cycle (3%).⁶⁵
- The average lunch break is 27 minutes with fewer than one in five workers taking a full hour and one in five (20%) working through their lunch.⁶⁶
- A third of employees would like staff catering facilities offering healthier eating options, a quarter would like on-site fitness facilities or gym memberships, 1 in 8 would welcome 15-minute workplace exercise sessions and 1 in 10 would back a ban on the sale of high-fat snacks, drinks and confectionery at work.⁶⁶

3.4.5 Community

The environment in which people live may influence their ability to maintain a healthy weight – this includes access to safe spaces to be active and access to an affordable, healthier diet. Examples of community based interventions in the UK to prevent obesity, improve diet and/or increase activity levels include:

- improved information and access to healthier food choices for example, partnerships with small and large retailers improving access to major stores and better provision at local shops, establishment of food co-ops, community cafes, growing clubs
- improved knowledge and skills on healthy eating and food preparation, for example, supermarket tours, cook and eat classes
- community voucher schemes for example, for local sport facilities

- improving support for example, walking groups
- safer walking and cycling routes (for example, cycle ways, improved lighting, bike parks, pedestrian crossings).

However, all local planning decisions may therefore have an impact on the health of the local population. A variety of work may also be ongoing which has other aims but may also have an impact on weight, diet and/or activity levels, such as traffic calming, congestion charging, the positioning of shops and public transport routes, building design. Furthermore, the fundamental concerns of local users may influence whether they are likely to change their behaviour, such as concerns about safety, transport links and services.

Community interventions for health are a range of very varied initiatives, programmes, projects and activities emerging out of and overlapping with a range of areas including public health, community development, activities addressing health inequalities, attempts to increase 'social capital', and health partnerships, among others. Most community level interventions start from a broad definition of health. With a growing awareness of the multiple factors that affect health many community-based interventions that seek to address other factors – unemployment, crime, poor education standards – can also be seen to have a potential impact on health even if indirectly. Therefore, distinguishing interventions with specific health aims from those with more general employment or environmental aims is often not easy and therefore judging the 'effectiveness' of community-based work is not necessarily straightforward.⁶⁷

Personnel involved in public health interventions to prevent or manage obesity may include nurses, GPs (the new General Medical Services [GMS] contract requires practices to offer relevant health promotion advice to patients), health promotion specialists, behavioural psychologists, physiotherapists, pharmacists, dietitians, public health nutritionists and appropriately trained exercise specialists. Additional trained front line staff (for example, pharmacy assistants) may also be in position to provide opportunistic advice if sufficiently trained.

Effective interventions often require multidisciplinary teams and the support of a broad range of organisations; local authorities and PCTs are in prime position to be able to establish effective partnerships. Local authorities, along with PCTs therefore have a key role in the prevention of obesity. Two key policy documents require much greater joint working and partnership between PCTs, local authorities, NHS foundation trusts, NHS trusts, independent sector and voluntary organisations:

- 'National standards, local action'⁶⁸ sets out the framework for all NHS organisations and social service authorities to use in planning over the next financial three years. It looks to PCTs and local authorities to lead community partnership by even closer joint working (with LSPs) to take forward the 'NHS improvement plan'.
- The 'NHS improvement plan'⁶⁹ set out the next stage of the government's plans for the modernisation of the health service. It signalled three big shifts:
 - putting patients and service users first through more personalised care
 - a focus on the whole of health and well-being, not only illness
 - further devolution of decision-making to local organisations.

Local area agreements form part of the developing agenda for local government. Under the local government power of well-being, coordination of local service delivery and joined-up working by local partners have become key contributions to the promotion of health.

3.5 Key clinical audiences and settings

3.5.1 Primary care

The primary healthcare team, chiefly GPs, practice nurses and health visitors, have an important role in the identification, assessment and management of overweight and obese adults, children and young people. A 'typical' NHS general practice with a list size of 6000 will have approximately 1000 adults who are obese ($BMI \geq 30 \text{ kg/m}^2$), 50 adults

who have severe obesity (BMI ≥ 40 kg/m²) and approximately 200 children (aged 2–15 years old) who are obese (BMI above 95th centile).^{38,70}

Obesity in adults within the primary care setting is broadly managed in three ways, depending on the degree of obesity and the extent of clinical comorbidities (for example, diabetes, hypertension, osteoarthritis):³⁵

- General advice within the surgery, and personal advice by a GP or practice nurse on weight control, diet and physical exercise aimed at influencing lifestyle.
- Personal advice on weight loss and lifestyle change by a GP or practice nurse supported by drug therapy prescribed by the general practitioner.
- Onward referral by a GP to a weight loss specialist, possibly involving drug therapy and, in extreme cases, surgery.

Surveys have, however, identified a number of barriers to the effective management of obesity in adults in primary care, notably in relation to GPs reporting uncertainty about three areas: the effectiveness of lifestyle interventions, the appropriateness and effectiveness of drug therapy and the effectiveness of referral options.^{35,71}

There is a lack of published surveys reporting current practice in the management of obesity in children and young people in primary care.

Recent changes to the structure of primary care in the UK may help facilitate better management of obesity in adults and children by the primary healthcare team. The new GMS contract³ has since April 2004 required practices to offer consultation for chronic disease and related health problems; offer relevant health promotion advice to patients; and to refer patients to other treatment that may be necessary. Under the new contract PCOs are also able to commission enhanced services from practices, these could include commissioning obesity clinics from NHS or non-NHS providers. Another key aspect of the new GMS contract is the Quality and Outcomes Framework (QoF). The QoF currently includes a quality marker for the recording of BMI in patients with diabetes. From April 2006 the QoF will also include a quality marker for practices to set

up a register of patients aged 16 and over who have a BMI equal to or greater than 30 kg/m².⁷²

3.5.2 Secondary care

Obesity in adults and children is managed in secondary care as part of a treatment programme for patients with specific comorbidities (for example, type 2 diabetes in adults and endocrine disorders in children). There is, however, little specific obesity-related activity in the NHS at secondary care level.³⁵

3.5.3 Specialist obesity services

In 2002, the Department of Health issued a definition as to what should constitute specialist morbid obesity services for adults and children.⁷³ It recommended an integral management approach for patients aimed at weight loss and weight maintenance. Programmes should be drawn up by a multidisciplinary team and may include some or all of the following: weight loss goals, diet, behaviour management, physical activity, drug treatment and bariatric surgery.

- Surgery is an effective intervention to aid weight loss.⁷⁴ It should only be undertaken in specialist centres and by surgeons who work in collaboration with a physician with expertise in this area and who carry out the required number of procedures to ensure optimum outcomes. The main surgical procedures currently undertaken in the UK are: restrictive (laparoscopic gastric banding), restrictive/malabsorptive (gastric bypass) and malabsorptive/restrictive (duodenal switch with biliopancreatic diversion). All patients receive diet and behaviour advice following any surgical procedure as part of a programme encouraging a change in lifestyle.
- Since the Department of Health's 2002 report it has been noted that specialist obesity services remain poorly distributed across England and Wales and that few people with severe obesity can access services on the NHS. There are currently seven NHS-operated specialist obesity clinics for adults and six NHS-operated specialist obesity clinics for children. The number of surgeons undertaking obesity surgery is unknown. Specialist services for children are likely to be even more limited.⁷³

3.6 Addressing inequalities in health

3.6.1 Social status

Data on health inequalities are primarily based on data that show marked differences in health from top to bottom of the occupational hierarchy. Similar differences are captured in measures of people's socioeconomic circumstances, which are based on education, income and housing tenure. Policy responses have focused on addressing:

- those in the poorest circumstances and the poorest health (that is, the most socially excluded, with the most risk factors and those most difficult to reach. If effective such interventions only help a relatively small part of the population.

or

- the broader social gradient in health recognising that it is not only the poorest groups and communities who have poorer health. There are large numbers of people who although they could not be described as socially excluded are relatively disadvantaged in health terms.⁷⁵

The core objective of current public health policy is to improve health and to reduce health differences between groups in society (by tackling the wider determinants of health inequalities).

In most developed countries there is an inverse relation between measures of social status, such as income and education level and obesity, particularly among females. The HSE³⁸ found that the proportion of men and women who were obese was lower among those in managerial and professional households, and in intermediate households, than in the other three national statistics socioeconomic status groups. The trend was particularly strong in women, with 18.7% of managerial and professional women classified as obese compared with 29.1% of women in routine occupations. A similar pattern was seen in the distribution of raised waist circumference in men, and with income in women (but not men). Differences in prevalence of obesity between social groups are also observed in children.¹⁰

Parental social class may have an enduring effect on offspring's risk of overweight and obesity in adulthood (see for example, Langenberg et al 2003^{add reference}). It has been argued that that cheaper foods are usually high in fat and energy dense, and those with less financial resources spend more time in sedentary activities, such as watching television.⁷⁷

Disadvantage is associated with:

- lower consumption of healthier food options. Compared with higher social groups, lower social groups have 50% lower intakes of fruit and vegetables, lower intakes of protein, fibre and many vitamins and minerals.^{2,50}
- poor access to sports facilities
- less physical activity outside work and less participation in sport, for example, the HSE⁷⁸ found that 66% of men and 67–69% of women with the lowest incomes participated in some physical activity of at least moderate intensity in the past 4 weeks compared to 87–88% of men and 83–84% of women in the two highest income quintiles.

The 2004 Wanless report³¹ stated that:

'Public health policy has recognised the growing importance of the wider determinants of health such as income, education, employment, housing and the environment as well as their effect on lifestyle. Highlighted by the Black report and Acheson report, much of government policy now seeks to address these issues that have traditionally been outside the health domain'.

The Acheson report⁷⁹ highlighted that:

'Studies have shown that people on a low income can describe a healthy diet as well as those on higher incomes. Food poverty, affordability and access to a healthy and varied diet have been identified as possible barriers'.

The guidance for implementing the preventive aspects of the NHS framework on CHD⁸⁰ noted that issues around access:

'should not be seen purely in terms of physical proximity and other kinds of access need to be considered for example financial access, knowledge and information (HEA 1998a). In areas where a large proportion of the population is unemployed, on low income or in receipt of benefits, interventions to improve people's access to a healthier diet are likely to be a key priority'.

The guidance also stated that the characteristics of good practice on work on physical activity and inequalities (HEA 1999a)^{add reference} include proactive outreach work; taking a multidisciplinary approach; involving targeted communities; and developing new partnerships with professionals who have good access to hard to reach groups.

However, low socioeconomic status groups and ethnic minority groups are frequently under represented in community trials and different strategies may be needed to target these groups.⁸¹

3.6.2 Ethnicity

Obesity (as defined as a BMI ≥ 30 kg/m²) is less common in men from other minority ethnic backgrounds than the general population in England, with the exception of black Caribbean men (25% obese) and Irish men (23.6% obese).³⁸ Among women, the prevalence of obesity among black Caribbean, black African and Pakistani women is substantially higher than the general population (with the prevalence of obesity in these groups at 32.1%, 38.5% and 28.1%, respectively). There are also variations by ethnicity in the prevalence of raised waist circumference (as defined as ≥ 102 cm for men and 88 cm for women). For men, the prevalence of raised waist circumference was only higher than the general population for Irish men (33%). For women, the prevalence of raised waist circumference was higher than the general population for black Caribbean (47%), black African (53%), Pakistani (48%), Bangladeshi (43%) and Irish (43%) women.³⁸

Differences in obesity rates and fat distribution between ethnic groups are believed to be due to a genetic predisposition, which becomes apparent when such groups are

exposed to unhealthy diet and lifestyle patterns. Dietary patterns may vary between first and second generation migrants to the UK, with second generation offspring of former migrants appearing to adopt British patterns, increasing fat and reducing fat and vegetable, fruit and pulse consumption compared with first generation migrants.⁸² McKeigue and coworkers⁸³) showed that Indian immigrants showed increased levels of weight gain and obesity after entering the UK. Behaviours and attitudes may differ between ethnic groups. For example, African American women have been shown to have higher fat intakes, be less likely to participate in physical activities than white women and may not experience the same cultural pressures to be slim.⁸⁴

The 'Health survey for England'³⁸ shows that adherence to physical activity recommendations varies by ethnic group: 26% of Bangladeshi men, 30% of Indian men and 37% of black Caribbean men met physical activity recommendations compared with 37% of men in the general population; and 11% of Bangladeshi women, 23% of Indian women and 31% of black Caribbean women met the recommendations compared with 25% of women in the general population.

The results of short questionnaires included in the most recent 'Health survey for England' (2004)³⁸ suggest that all minority ethnic groups (except the Irish) consumed significantly more fruit and vegetables and significantly less fat than the general population. However, more rigorous analysis of dietary intake by ethnicity is not available from the most recent national diet and nutrition survey (2000).⁵⁰

Graham and Kelly⁷⁵ have noted that socioeconomic disadvantage is a major contributor to the poorer health of African Caribbean, Bangladeshi and Pakistani groups and exposure to racism is an important part of why they are more disadvantaged than the wider population.

The considerably higher risk of cardiovascular disease (CVD) for South Asian men and women in England and Wales (22% and 60% higher than Europeans, respectively) suggests that the potential gains from controlling major establish risk factors for CVD – such as obesity – could be substantial for South Asians and greater than in Europeans.⁸⁵

The guidance for implementing the preventive aspects of the NHS framework on CHD⁸⁰ noted that the Acheson report (1998):

‘recommended that the needs of black and ethnic minority ethnic groups be considered specifically. The HEA (2000) found that among black and minority ethnic groups understanding of healthy eating messages varied widely across groups and knowledge of food high in complex carbohydrates, fibre, fat and saturated fat was often poor across all ethnic groups. There is therefore a need to raise awareness of the links between diet and CHD among these groups and to promote culturally specific messages’. In relation to physical activity, the guidance also noted that ‘barriers to participation in physical activity among black and minority ethnic groups tend to be similar to many of those in other groups including lack of time and concerns about body shape. Additional barriers include racism, cultural inappropriateness (eg lack of single sex provision) the importance of family responsibilities and language issues (HEA 1997a).’

3.6.3 Other vulnerable groups

3.6.3.1 People with learning disabilities and serious mental health problems

Obesity is more common in people with learning disabilities than in the general population: estimates range from 17% to 51% for adults^{86,87}, Linehan et al 2004) and 24% for children (based on 95th percentile for age).⁸⁸ Obesity is a particular issue for women and people living in more independent settings in the community rather than in institutions.^{89,90} Higher levels of obesity among people with learning disabilities has been attributed to inadequate diet and low levels of physical activity, particularly among people with more severe impairments in more institutional settings.^{90–92} Problems that people face in addressing obesity include insufficient income, transport problems, unclear policy guidelines in residential and day service provision, and staffing constraints.^{92,93}

It is estimated that the prevalence of obesity is approximately 50% higher in people with serious mental health problems compared with the general population.^{94–95} It is well established that weight gain is associated with both newer and more traditional antipsychotic medication and weight gain increases over time.^{97,98} However, poor diet and lack of exercise are also likely to be contributing factors.⁹⁹

3.6.3.2 Looked after children

Looked after children may have poor access to adequate healthcare and health promotion information. The Caroline Walker Trust^{100,101} has highlighted that 'Their diets are a particular cause for concern because many of them will already have experienced deprivation and poor health care before they arrived in care'. However, there is very little information about the physical health of looked after children and young people despite evidence that they are at increased risk of ill health in adulthood.

3.7 Assessment of the evidence base

Garrow and Summerbell³⁷ have highlighted that:

'A convenient, but imperfect, measure of the effectiveness of obesity treatment is the weight loss achieved during treatment, and the extent to which it is maintained after active treatment ceases. Ideally, such measurements should be made over a period of several years. It is difficult to achieve high follow-up rates over long periods, so most trials of obesity treatment are characterised by a rather high drop-out rate, and a large variability in weight loss within a group of patients on the same treatment. This makes design of good randomised control trials (RCTs) very difficult.'

From the outset of the development of this guidance, it was known that the evidence base on effective interventions to prevent overweight and obesity was extremely limited^{102, 103}. For example, based on UK data published after 1990, the Scottish Intercollegiate Guidelines Network (SIGN) 2003¹⁰³ concluded that 'no study has appropriately examined specific environmental factors, such as low habitual physical activity and inappropriately high energy intake which are believed to have causal roles in the current epidemic of child obesity'.

The WHO³⁴ report 'Obesity: preventing and managing the epidemic' discussed the problems of evaluating obesity prevention programmes, noted that 'at present prevalence rates of obesity are the most commonly used measures of success or failure of interventions aimed at controlling obesity. However, these have a number of serious limitations when used in isolation.' These include:

- the prevalence of obesity in a population is unlikely to decline in the short term
- a long time often elapses before environmental, societal and behavioural changes are reflected in population weight status
- estimates of the prevalence of and trends in obesity are often unreliable because small sample sizes reduce their accuracy.

The report concluded that 'a more practical and useful outcome indicator for evaluating obesity prevention would be to combine the assessment of changes in the prevalence of overweight with short term indicators such as standardised measures of dietary change and of physical activity levels'.

The WHO⁸ subsequently reviewed the evidence on specific activity and dietary components which might promote or protect against obesity in adults and children over 2 years of age (Table 3.2).

Table 3.2 Activity and dietary components that may influence development of obesity

Evidence	Decreased risk	No relationship	Increased risk
Convincing	Regular physical activity		Sedentary lifestyles
	High dietary intake of non-starch polysaccharides (dietary fibre)		High intake of energy-dense foods
Probable			High intake of sugar-sweetened soft drinks and fruit juices
Possible	Low glycaemic index foods	Protein content of the diet	Large portion sizes
Insufficient	Increased eating frequency		Alcohol

It was therefore agreed that the development of public health guidance on obesity should consider the effectiveness of interventions in relation to dietary and physical activity outcomes in addition to measures of weight.

4 Methodology

4.1 Introduction

This chapter sets out in detail the methods used to generate the recommendations that are presented in the subsequent chapters.

The work for this guidance was split between two project teams to give full consideration to (i) the clinical and (ii) the broader public health issues. However, the complementary nature of the work was recognised from the outset; the teams worked closely throughout the process, had the same Chair, and the final recommendations (including cost considerations) were developed jointly.

The methods are largely in accordance with those set out by the National Institute for Health and Clinical Excellence (NICE) in 'Guideline Development Process – Information for National Collaborating Centres and Guideline Development Groups' (available at www.nice.org.uk). Where necessary, the methods were adapted as appropriate for the development for public health guidance. Where possible, it was ensured that the methods used by the project teams were consistent.

4.2 The developers

4.2.1 Clinical management

4.2.1.1 The National Collaborating Centre for Primary Care

The National Collaborating Centre for Primary Care (NCC-PC) is based at the Royal College of General Practitioners (RCGP) and has an academic partner, the Clinical Governance Research and Development Unit (CGRDU), Department of Health Sciences, University of Leicester. Its other partner organisations are the Royal Pharmaceutical Society of Great Britain and the Community Practitioners' and Health Visitors' Association. The Collaborating Centre was set up in 2000, to undertake commissions from NICE to develop clinical guidelines for the National Health Service (NHS) in England and Wales.

This guidance was developed jointly by the CGRDU, Department of Health Sciences, University of Leicester and the College Managed Unit of the NCC-PC. The NCC-PC project team consisted of the Project Lead (Clinical Director of the NCC-PC/Senior Lecturer in General Practice), one Senior Systematic Reviewer (Research Fellow, University of Leicester), one Systematic Reviewer (Research Fellow, NCC-PC, College Managed Unit, RCGP), one Information Librarian (Research Associate, University of Leicester), one Health Economist (NCC-PC, College Managed Unit, RCGP) and one Project Manager (NCC-PC, College Managed Unit, RCGP).

4.2.2 Public health

4.2.2.1 *The Centre for Public Health Excellence*

The Centre for Public Health Excellence (CPHE) was established when the functions of the Health Development Agency (HDA) transferred to NICE. The project team which initiated the development of the guidance at the HDA transferred directly to the CPHE. The project team included the Director of the CPHE, a Technical Lead (an Analyst at CPHE), analysts within the CPHE, and the Associate Director for Methodology at the CPHE.

4.2.2.2 *Collaborating centres and external contractors*

The CPHE was supported in collating the evidence on which the public health recommendations were based by two public health collaborating centres (PHCCs), one based at Cardiff University and the other based at the University of Teesside. Each PHCC produced a series of evidence reviews on a range of sub-topics to address the public health questions identified by the Guidance Development Group (GDG). On an approximately 12-weekly cycle, each PHCC searched for and synthesised the evidence base for a particular sub-topic as agreed with the CPHE and the GDG. **Two PHCCs were appointed so that the evidence could be provided to the GDG prevention subgroup meetings at 6 weekly intervals.** Members of the PHCC attended each GDG meeting.

An additional evidence review was commissioned from the Centre for Reviews and Dissemination at the University of York on the management of obesity in non-clinical

settings. A review of the available health economic evidence and subsequent modelling was undertaken by the Health Economics Consortium at the University of York.

4.2.3 Joint working

The Scope for this work was developed jointly by the HDA and the NCC-PC. A joint CPHE/NCC-PC steering group for the guidance was subsequently established which consisted of the Chair of the GDG and members of the NCC-PC and CPHE project teams. The final draft guidance was written jointly by the NCC-PC and the CPHE project teams (the latter supported by the CPHE collaborating centres). Editorial responsibility for the guidance rested solely with the project teams.

4.2.4 The Guidance Development Group

To address the broad nature of the task, the GDG consisted of two subgroups which functioned as two separate GDGs – one addressing clinical management and the other addressing prevention and public health issues. One Chair, a senior public health physician of national standing, identified jointly by the NCC-PC and HDA, oversaw the work of both groups.

Nominations for group members were invited from various stakeholder organisations, selected to ensure an appropriate mix of members. For the clinical subgroup this included healthcare professionals and patient representatives. For the public health subgroup this included health professionals and planning, local government, school, physical activity and consumer representatives. In view of the number of organisations that needed to contribute to the guidance, nominations were also received for co-opted experts. Each nominee was expected to serve as an individual expert in their own right and not as a representative of their parent organisation, although they were encouraged to keep their nominating organisation informed of the process. Co-optees contributed to aspects of the guidance development but did not sit on the GDG and were not involved in the final wording of recommendations. Group membership and co-optee details can be found in the preface to the guidance.

The GDG met on 14 occasions, at approximately 6-weekly intervals over 16 months to review the evidence identified by the project teams, to comment on its quality and completeness and to develop recommendations for practice based on the available evidence. In order to generate separate recommendations for adults and children, the clinical GDG was divided into adult and child subgroups. Each subgroup met to discuss the evidence reviews and to make preliminary recommendations.

Three joint GDG meetings were held to ensure consistency in the development of the clinical and public health guidance. The final recommendations were agreed by the full GDG. All GDG members made a formal 'Declaration of interests' at the start of the guidance development and provided updates throughout the development process.

4.3 Developing key questions

The first step in the development of the guidance was to refine the Scope into a series of key questions. The key questions formed the starting point for the subsequent evidence reviews and facilitated the development of recommendations by the GDG.

In relation to the clinical arm of the work, the key questions reflected the clinical care pathway for children and adults. For public health, the key questions reflected stages through the life course and/or settings providing opportunities for intervention.

Furthermore, the public health questions specifically addressed (i) the evidence in relation to weight outcomes and (ii) the evidence in relation to diet and activity outcomes.

The key questions were developed by the GDG with assistance from the project teams. As necessary, the questions were refined into specific research questions by the project teams to aid literature searching, appraisal and synthesis. The full list of key questions is shown in Appendix 2.

It was clear from the outset that a full literature search and critical appraisal could not be undertaken for all key questions due to the time and resource limitations within the guidance development process. The GDG and project teams therefore agreed

appropriate review parameters (inclusion and exclusion criteria) for each question or topic area.

4.4 Identifying the evidence

4.4.1 Literature search and evidence reviews

The aim of the literature review was to identify the most relevant, published evidence in relation to the key clinical questions generated by the GDG. Due to time constraints, full systematic reviews were not undertaken. However, the evidence reviews were undertaken using systematic, transparent approaches. The methods used by the clinical and public health project teams to search and review the literature varied to some extent, but overall consistency was ensured, as outlined below. Details of all literature searches for clinical reviews are available from the NCC-PC; details of all specific searches for public health reviews are annexed with review tables. Further references were also suggested by the GDG. Evidence submitted by stakeholder organisations that was relevant to the key questions and was of at least the same level of evidence as that identified by the literature searches was also included.

4.4.1.1 Clinical

In line with the Scope, literature searches were undertaken to produce an evidence review on each of the following key topic areas:

- Identification and classification of children and adults who were overweight or obese
- Lifestyle interventions for the management of overweight and obesity
- Pharmacological interventions for the management of overweight and obesity
- Surgical interventions for the management of overweight and obesity
- Professionally led complementary medicine interventions for the management of overweight and obesity

Other more restricted reviews were undertaken for the remaining key clinical questions. The findings of each of the reviews are summarised in Sections 2 and 5.

The specific search strategy for each topic area varied and was agreed with the Methods Team (with input from the GDG as necessary). A pragmatic approach was taken in defining the time period for searches and the included study types and outcome measures. The review parameters were agreed with the GDG and aimed to provide the best available evidence. **Where specific parameters were applied, the details are reported in the evidence review.**

In summary, reviews included:

- systematic reviews from 1995 and single studies (predominantly randomised controlled trials (RCTs) and non-randomised trials). No time restriction was applied for the Adult reviews, but Child reviews were limited to studies published since 1985
- studies which reported outcome measures of weight change (in kilograms for adults, and using any appropriate measure for children)
- studies with at least 12 months follow-up for adults, and 6 months for children.

Updated searches were conducted for references published during the course of the guidance development and a final search date of 1st December 2005 was agreed across all of the reviews. Because of the amount of literature reviewed and identified in the Update searches, only those studies where evidence statements (and therefore recommendations) needed substantial revisions were added in detail. Where studies were relevant, but did not alter the evidence summaries, these were noted in the narrative.

4.4.1.2 Public health

In line with the Scope, literature searches were undertaken to produce an evidence review on each of the following topic areas:

- Identification of children and adults at risk of obesity
- Raising awareness of weight, diet and activity
- Determinants of energy balance
- Interventions among children aged 2–5 years and families
- School-based interventions
- Workplace-based interventions
- Community-based interventions led by health professionals
- Broader community-based interventions
- Interventions among black and minority ethnic groups, vulnerable groups and at life stages with increased risk for weight gain.
- Management of obesity in non-clinical settings.

The findings of each of the reviews are summarised in Sections 2–4.

Reviews were undertaken over approximately 10–12 weeks. The specific search strategy for each topic area varied and was agreed with the CPHE (with input from the GDG as necessary). A pragmatic approach was taken in defining the time period for searches and the included study types and outcome measures. The review parameters were agreed with the GDG and aimed to provide the best available evidence in the time available. **The parameters are shown in detail in Appendix 2.** In summary, reviews included:

- systematic reviews from 1995 and single studies (predominantly RCTs and non-randomised trials) from 1990 – reflecting the period in which obesity has increased most significantly in England.
- studies which had outcome measures of weight, diet and/or physical activity.

- UK-based 'corroborative'-type evidence (such as surveys, cases studies and qualitative work) to assess issues such as barriers and facilitators to implementation.

In line with the clinical reviews, a final search to December 2005 was undertaken and the reviews were updated accordingly.

A key difference in the review parameters between the clinical and public health reviews was that the clinical reviews tended to only include interventions with at least 1 year follow-up whereas the public health reviews included interventions with at least 3 months' follow-up. Three months would generally be regarded as being too short for confident measurement of changes in body fatness in **individuals**. However, the public health reviews focus on the measurement of **group** changes over time; these are measurable over a period as short as 3 months.

4.4.2 Health economics

Separate clinical and public health reviews were conducted to assess the state of the economic evidence, given that in the main searches this evidence was limited. The reviews were undertaken by the health economists in each project team, liaising with other members of the project teams as appropriate. Given the limited economic evidence in the area it was decided to perform a broad search for evidence that was designed to identify information about the costs or resources used in providing a service or intervention and/or the benefits that could be attributed to it. No criteria for study design were imposed a priori. In this way the searches were not constrained to RCTs or formal economic evaluations. Papers included were limited to papers written in English and health economic information that could be generalised to UK on obesity prevention and management.

4.5 Reviewing and grading the evidence

The titles and abstracts of records retrieved by the searches, suggested by the GDG or submitted by stakeholders were scanned for relevance to the key questions. Any potentially relevant publications were obtained in full text. These were reviewed to

identify the most appropriate evidence to help answer the key questions and to ensure that the recommendations were based on the best available evidence. This process required four main tasks: selection of relevant studies; assessment of study quality; synthesis of the results; and grading of the evidence. The methods used by the project teams are outlined below.

For both groups, the primary outcome measure was BMI, weight and/or waist circumference. Other reported anthropometric outcomes (such as skinfold thickness) were also considered where available. As discussed earlier, dietary and physical activity outcomes which may promote or protect against obesity were also considered key outcome measures within the public health reviews. In the clinical reviews, such measures were considered secondary outcomes, as were any relevant health indicators, such as measurements of blood pressure or blood cholesterol. Any additional information on factors which may have influenced the study results and had an impact on the wider implementation of an intervention, such as participants' age, ethnicity or social status; the staff involved in the intervention; dropout rates and payments or rewards given to participants, were recorded in the evidence tables considered by the GDG.

4.5.1 Review of the clinical evidence

The searches were first sifted by the systematic reviewers to exclude papers that did not relate to the scope of the guidance. The abstracts of the remaining papers were scrutinised for relevance to the key questions under consideration. Initially both systematic reviewers reviewed the abstracts independently. This proved impractical as the guidance progressed and the task was delegated to the systematic reviewer responsible for each section. The project lead was asked to review the abstracts in cases of uncertainty.

The papers chosen for inclusion were obtained and assessed for their methodological rigour against a number of criteria that determine the validity of the results. These criteria differed according to study type and were based on the checklists included in the NICE Technical Manual, 'Guideline Development Methods – Information for National

Collaborating Centres and Guideline Developers' (available from www.nice.org.uk). Critical appraisal was carried out by the systematic reviewers. Further appraisal was provided by the GDG members at and between the GDG meetings.

The data were extracted to standard evidence table templates. The findings were summarised by each systematic reviewer into a series of evidence statements and an accompanying narrative review. Where appropriate, a quantitative synthesis was conducted and checked by a consultant statistician.

4.5.2 Review of the public health evidence

Each evidence review:

- critically appraised the included studies
- identified what components are effective for which groups and in which settings
- identified the inputs and process issues which had an impact on the development and delivery of effective interventions

The hits from the database search were saved. Papers that were clearly inappropriate were excluded at this stage. Full copies of papers that could not be excluded with confidence at this stage were ordered. The full papers were reviewed against an IN/OUT form. Papers were categorised into (i) excluded (ii) included (iii) unclear/require further information. Each included paper was critically appraised using the relevant NICE checklist (except longitudinal studies within some reviews which were appraised using the tool developed by Tooth and coworkers 2005⁽¹⁰⁶⁾); and the studies in the 'energy balance' review were not critically appraised due to the quality element of the inclusion criteria – see review for details). In addition, data from each paper was extracted onto a proforma. Relevant information from the checklist and the proforma for each included study was then summarised for GDG members in evidence tables, evidence statements and narrative summaries. Critical appraisal and data extraction was carried out by one reviewer and any queries discussed with another reviewer. Data

extraction into standard evidence tables was also double checked against the original study papers.

The evidence tables, statements and summaries provided the GDG with:

- synthesis of key findings
- discussion of the strengths and weaknesses of the evidence
- identification of any gaps in the evidence base
- an assessment of how up to date the evidence is
- identification of consensus or dispute around the evidence
- an initial assessment of the available evidence on cost effectiveness.

Only a few public health RCTs met the NICE critical appraisal criteria in full and it was rarely possible to be certain that, as required by the NICE critical appraisal processes, the overall effect was due to the study intervention. Studies often lacked (or failed to report) a description of the randomisation process, concealment allocation and/or an intention to treat (ITT) analysis. Following agreement with NICE and the public health GDG, RCTs with no ITT but with 80% or more follow-up were downgraded in quality assessment but not downgraded to non-randomised controlled trials (CCTs). Studies with no ITT and less than 80% follow-up were downgraded to CCTs. The lack of description of randomisation and/or concealment allocation also led to a downgrading but not automatic rejection. Detailed guidance for appraisers on the use of the critical appraisal forms for public health research studies is under discussion within NICE.

4.5.3 Grading the evidence

The findings were summarised into a series of evidence statements by the project teams. The evidence statements were graded according to an established hierarchy of research designs (Table 4.1). The grades were considered by the GDG and amended if necessary.

Table 4.1 Levels of evidence for intervention studies

Level of evidence	Type of evidence
1++	High-quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews of RCTs or RCTs with a low risk of bias)
1–	Meta-analyses, systematic reviews of RCTs or RCTs with a high risk of bias ^a
2++	High-quality systematic reviews of non-RCT, case–control, cohort, CBA or ITS studies High quality non-RCT, case–control, cohort, CBA or ITS studies with a very low risk of confounding, bias or chance and a high probability that the relation is causal
2+	Well-conducted non-RCT, case–control, cohort, CBA or ITS studies with a very low risk of confounding, bias or chance and a moderate probability that the relation is causal
2–	Non-RCT, case–control, cohort, CBA or ITS studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal ^a
3	Non-analytic studies (for example, case reports, case series)
4	Expert opinion, formal consensus

^a Studies with a level of evidence ‘–’ should not be used as a basis for making a recommendation.

RCT – randomised controlled trial; CBA – controlled before-and-after; ITS – interrupted time series

For each question, the highest level of evidence was selected. If a systematic review, meta-analysis or RCT existed in relation to the question being asked, studies of a weaker design were ignored. Where the evidence base was limited questions were addressed by the identification of published expert narrative reviews by the project team and/or the GDG which formed the basis of discussion papers written either by the project lead or by a member of the GDG.

4.5.3.1 Additional considerations for clinical management

Due to paucity of evidence for interventions in children, the GDG recommended that we considered lower levels of evidence throughout the reviews because of the limitations of the higher-level evidence available. Similarly in the reviews on surgical interventions for adults, we considered longer-term case series (lower-level evidence) in addition to higher level RCTs to provide the GDG with evidence on the long-term complications for each procedure.

Summary results and data are presented in the guidance text. More detailed results and data are presented in the evidence tables.

A number of key clinical questions could not appropriately be answered using a systematic review, for example, where the evidence base was very limited. These questions were addressed by the identification of 'published expert' narrative reviews by the project team and/or GDG which formed the basis of discussion papers written either by the project lead or the systematic reviewers.

4.5.3.2 Additional considerations for public health

A parallel scale for grading evidence for public health, policy and practice does not exist at present. A review of the grading of public health evidence and recommendations¹⁰⁴ indicated general agreement that the RCT has the highest internal validity and, where feasible, is the research design of choice when evaluating effectiveness. However, it was acknowledged that 'gold standard' RCTs cannot be readily performed in public health interventions (particularly community-based programmes) for feasibility, cost and practical reasons. Furthermore, RCTs tend to be limited to questions of efficacy; they are less useful, and hence less appropriate, when considering external validity and issues of implementation. Thus reviews of evidence for public health interventions tend to be dominated by 'lower' levels of evidence.

NICE is currently considering the methods used to assess evidence and prioritise recommendations that may be applied across all types of question, leading to both clinical and public health recommendations (see www.nice.org.uk/pdf/boardmeeting/brdnov05item4.pdf). In relation to the development

of public health recommendations on obesity, it was also agreed that the rapid reviews of the evidence should actively incorporate corroborative evidence (from observational and qualitative studies) for the feasibility and likelihood of success of an intervention if implemented in the UK.

4.6 Developing recommendations

For each key question, recommendations were derived from the evidence summaries and statements presented to the GDG.

Each recommendation was linked to an evidence statement. The GDG was able to agree recommendations through informal consensus, taking cost effectiveness considerations into account. Where there was a lack of evidence of effectiveness, but the GDG was of the view that a recommendation was important based on the GDG members' own experience and/or the availability of UK-based corroborative evidence (such as surveys, case studies), this was highlighted as 'opinion of the GDG' .

4.6.1 Clinical

Clinical recommendations were drafted for the NHS only.

4.6.2 Public health

Public health recommendations were drafted for both the NHS and non-NHS settings. Recommendations were developed with five separate groups in mind, based on their status and ability to implement recommendations (Table 4.3).

Table 4.3 Details of the five groups for which the public health recommendations were drafted

Group 1	NHS	NHS organisations are strongly advised to implement recommendations. Recommendations fall under 'developmental standards' – standards which the NHS is expected to achieve over time
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Group 2	Public bodies; local authorities; government, government agencies and arms length bodies; forces, prisons and police service	Organisations are strongly encouraged to implement recommendations
	Schools, colleges and childcare in early years settings	Public organisations and schools were previously outside the remit of NICE. However, with the remit of the new organisation, discussions between NICE, the Department of Health and relevant organisations on the status of recommendations directed at this group are ongoing
Group 3	Private and voluntary organisations: large employers (more than 250 employees)	Organisations are strongly encouraged to implement recommendations. Large private and voluntary organisations are outside the remit of NICE
		It should be noted that although reducing obesity is not the main aim of most workplaces, and that workload and time pressures for staff and organisations is substantial, addressing these issues is in line with standard business 'good practice' approaches such as good corporate citizenship, reducing staff ill health and reducing workplace costs due to sickness and absences
Group 4	Private and voluntary organisations: small and medium employers (fewer than 50 and fewer than 250 employees, respectively)	Organisations outside the remit of NICE are advised that the recommendations outlined are best practice
		The difficulties for small organisations in implementing some recommendations is recognised, particularly for those without an occupational health worker
Group 5	Consumers including parents, the media and others providing advice for individuals/population groups	Recommendations directly for parents and consumers are best practice .
		The role of the media and other non health professionals in the provision of advice/awareness raising is recognised through a number of recommendations.

4.7 Relation between the guidance and technology appraisals

This guidance was required to update the following NICE technology appraisals:

- National Institute for Clinical Excellence (2001). 'Guidance on the Use of Orlistat for the Treatment of Obesity in Adults'. *NICE technology appraisal* no. 22.
- National Institute for Clinical Excellence (2001). 'Guidance on the Use of Sibutramine for the Treatment of Obesity in Adults'. *NICE technology appraisal* no. 31.
- National Institute for Clinical Excellence (2002). 'Guidance on the Use of Surgery to Aid Weight Reduction for People with Morbid Obesity'. *NICE technology appraisal* no. 46.

The objective for the GDG in updating these appraisals was to determine whether any new evidence that had become available since the publication of the appraisal warranted a change to the original recommendations. To achieve this the NCC-PC health economist updated the models of the original appraisal (when available from NICE). Changes to the original appraisal recommendations are clearly documented in the full version of the guidance. The guidance recommendations resulting from this update process are graded as considered appropriate by the guidance developers. Once the Obesity Guidance is published the existing technology appraisals will be withdrawn by NICE.

4.8 Relation between the guidance and national service frameworks

The existing national service frameworks (NSFs) contain standards which are of relevance to the prevention and management of obesity, particularly those on CHD, cancer, diabetes, and children. However, the aims of the guidance and the NSFs differ. The guidance aims to assist decisions about appropriate healthcare or preventive strategies for clinical and public health settings. Conversely, the NSFs are primarily concerned with service delivery, which is outside the Scope of the guidance.

4.9 Relation between the guidance and 'Choosing health'

The 2004 Public Health White Paper, 'Choosing health',² reiterated the commitment for NICE to publish guidance on the prevention and management of obesity. A commitment was also made to producing a care pathway for the local management of obesity; the pathways to be circulated by the Department of Health will be superseded by the care pathways presented in the final version of this NICE guidance. In many instances the recommendations made in this guidance will support the implementation of other commitments made in 'Choosing health'.

4.10 External review

The guidance has been developed in accordance with the NICE guideline development process. This has included allowing registered stakeholders the opportunity to comment on the Scope and the draft guidance. In addition the first draft was reviewed by an independent Guideline Review Panel (GRP) established by NICE.

The comments made by stakeholders, peer reviewers and the GRP were collated and presented anonymously for consideration by the GDG. All comments were considered systematically by the GDG and the Project Team recorded the agreed responses.

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FINAL VERSION

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