



GUIDELINES FOR THE MANAGEMENT OF OBESITY IN SECONDARY CARE

June 2005

This document has been produced by the Clinical Resource Efficiency Support Team (CREST), which is a small team of health care professionals established under the auspices of the Central Medical Advisory Committee in 1988. The aims of CREST are to promote clinical efficiency in the Health Service in Northern Ireland, while ensuring the highest possible standard of clinical practice is maintained.

These guidelines have been produced by a sub-group of health care professionals from varied backgrounds including Medical, Clinical Psychology, Physical Activity, Dietetics, Nursing, Information, Charities and Public Health / Health Promotion, Chaired by Dr Tom Trinick. CREST wishes to thank them and all those who have contributed in any way to the development of these guidelines.

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CREST GUIDELINES FOR THE MANAGEMENT OF OBESITY IN SECONDARY CARE

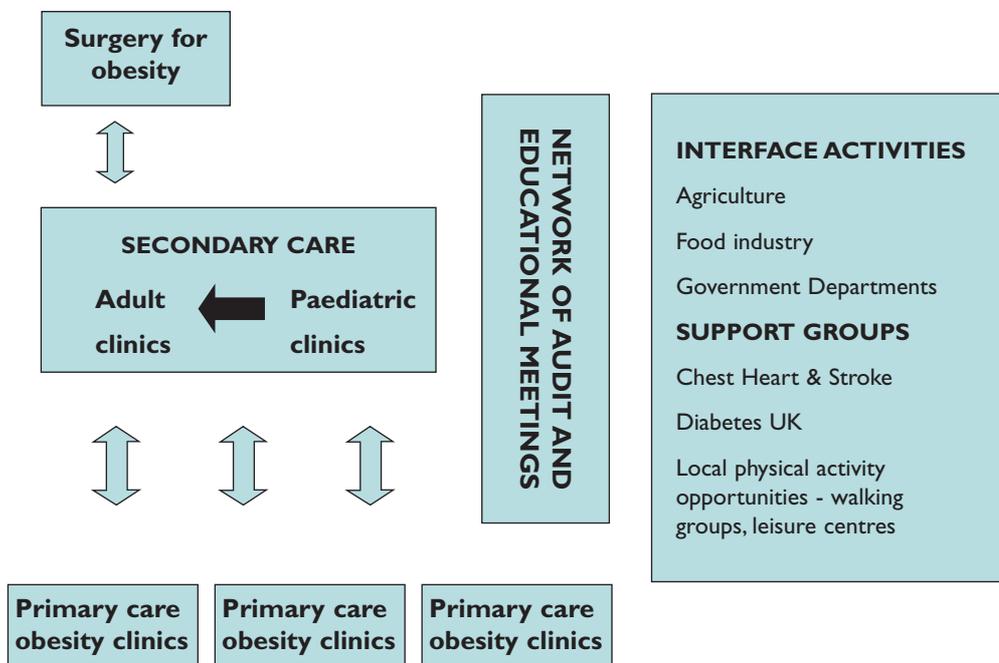
1.0 EXECUTIVE SUMMARY

This document outlines a strategy for the management of obesity. While the focus is on the management of obesity in secondary care, there are obvious implications for primary care. The purpose of this document is to give detailed practical guidance on the management of obesity in secondary care.

Obesity is a major health problem in Northern Ireland, with at least 17% of men and 20% of women being classed as clinically obese (Body Mass Index [BMI] >30kg/m²). Management involves changing lifestyle, principally eating fewer calories from foods and drinks and increasing physical activity. Drug therapy is indicated for some individuals, and for a small number, surgery may be appropriate.

It is vital that preventative measures for the population of Northern Ireland are implemented.

Overview of proposed obesity services in Northern Ireland



If no change is effected, it is estimated that the cost of obesity to Northern Ireland over the next twenty years would be £14.2m in lost productivity, £90m in cost to the Department of Health, Social Services & Public Safety (DHSSPS) to treat obesity related disease and through obesity related deaths a total lifetime economic worth of £340m.

1.1 Main recommendations

The recommendations from CREST are grouped under specific headings as shown below:

Awareness

- The Ministerial group on intergovernmental strategy for public health should establish a working party to create an environment that is less conducive to developing obesity
- Encourage partnerships between public, private, voluntary and community sectors to develop a holistic approach to the treatment and prevention of obesity
- Guidelines should be developed regionally for obesity management in primary care
- Raise awareness in primary and secondary care of the methods of detection and treatment of obesity through education and training of all staff
- All clinics treating obesity should be aware of the availability of local slimming clubs, leisure centres and support groups, which may offer physical activity opportunities for the obese and in that way act as advice centres

Establishment of specialist services

- Establish a clinical network of accessible secondary care centres for the treatment of obesity in adults
- Set up community paediatric obesity clinics in each Board area
- Set up a bariatric surgery centre

Patient management

- A standardised computerised patient database should be developed and used regionally to facilitate patient monitoring and audit
- Establish protocols for referral to secondary care and for surgery

Physical activity

- The development of sustainable, affordable physical activity opportunities in the community needs to be fully addressed

- Exercise specialists or appropriately trained physiotherapists should be available to support secondary care initiatives for obesity management
- Physical activity prescription should include free access to leisure centres while the patient is attending specialist clinics and for three months after discharge

Workforce planning

- Future workforce planning should include sufficient dietitians, clinical psychologists, physicians, surgeons and physical activity advisors – at both community and secondary level

Service development

- Establish ongoing surveillance methods for the population, such as a longitudinal anthropometric survey for Northern Ireland
- An implementation group should be established to guide the development of the service
- Initiate mandatory annual audit for obesity management in secondary care
- Establish links with academia to derive the evidence base for best practice

Training

- Promotion of pre-registration training in weight management for health professionals
- Establish postgraduate training in weight management for health professionals
- An internet site should be supported and maintained for education in obesity in Northern Ireland

1.2 Implementation plan

The implementation plan for this project involves setting up accessible adult secondary care obesity management clinics with access to a surgical centre for obesity management. It is suggested that these clinics be located in the Royal Victoria Hospital, Belfast City Hospital, Ulster Hospital, Altnagelvin Hospital, Antrim Hospital, Craigavon Area Hospital and the Erne Hospital. In addition, one community based paediatric clinic should be established in each Board area.

It is envisaged that, once established, secondary care clinics will provide a focus for clinics in primary care and there will be the opportunity for primary and secondary care to set up treatment and referral protocols.

Secondary care clinic staffing will be multidisciplinary, led by a clinician from general medicine, metabolic medicine or diabetes with a special interest in obesity. Other staffing should include as a minimum, a dietitian, a clinical psychologist, nursing support and an expert in exercise advice. Clinics will undertake ongoing audit of their results and use this information in a collaborative manner to improve the service over time. Obesity should be included as a key target in the Department of Health, Social Services & Public Safety (DHSSPS) *Priorities for Action*.

1.3 Feasibility of these guidelines

There are over 25,000 morbidly obese adults (BMI>40) in Northern Ireland. Assuming that at least 10% of these people are referred to a secondary care clinic and that there will be seven adult clinics, if each clinic sees one hundred new patients a year, it is anticipated that this programme will take three and a half years to clear this projected work load. Referral rates and distribution of the morbidly obese population are difficult to determine with any certainty, however, calculations of this kind allow some assessment of feasibility.

1.4 Framework for implementation of guidelines

We suggest a phased implementation with piloting of these guidelines. The costs of full implementation, based on our proposed model of adult and paediatric centres and one bariatric surgical centre would be £2m per annum.

2.0 INTRODUCTION

The World Health Organisation (WHO) has declared the current increase in population obesity to be an epidemic¹. Obesity is one of the most important public health issues in the United Kingdom and is second only to smoking in terms of its adverse impact on health. While obesity is common and serious, it can be treated.

The principal intervention for the treatment of obesity remains that of changing people's eating and physical activity behaviours. Essentially, obese people consume too much energy from food, alcohol and beverages and do not expend enough energy in the form of physical activity. The Department of Health, Social Services & Public Safety (DHSSPS) has identified reducing obesity as a key priority health issue for Northern Ireland.

Obesity, especially abdominal obesity, is associated with insulin resistance and various metabolic abnormalities, with a significantly increased risk of Type 2 diabetes mellitus, hypertension and atherosclerosis.

Obesity is a serious medical problem, which requires appropriate and effective management by suitably trained members of a multidisciplinary team. It is clear that significant health benefits result from a modest weight reduction of 5-10%^{2,3}.

Obesity in children and adolescents is a major problem in the developed world and is increasing annually. Strategies are needed for early identification of obesity in childhood, together with dietary advice, behavioural change and physical activity interventions founded on best practice.

3.0 REMIT OF THE CREST WORKING GROUP

The purpose of this document is to give detailed practical guidance on the management of obesity in secondary care and to develop a plan for implementation. This would be accompanied by specific recommendations for the development of obesity services in secondary care.

4.0 DEFINITION OF OBESITY

Obesity may be defined as a disorder in which excess body fat has accumulated to an extent that health may be adversely affected ⁴. The most commonly used measure of body fatness is Body Mass Index (BMI), which is calculated as weight in kilograms divided by the square of height in metres. The person is weighed wearing light clothes only, with shoes off and head erect (see Appendix 3).

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Increased body fat content is associated with increasing mortality with a BMI of between 25 and 30kg/m², with further progressive increases above a BMI of 30 ⁵. There are differences for children and different ethnic groups as described in Appendices 3 and 7.

Table 1. WHO classification of obesity

<u>BMI kg/m²</u>	<u>DESCRIPTION</u>	<u>RISK OF CO-MORBIDITIES</u>
<18.5	Underweight	Low
18.5-24.9	Healthy weight	Average
25-29.9	Pre-obese (overweight)	Mildly increased
30-34.9	Obese class I (moderately obese)	Moderate
35-39.9	Obese class II (severely obese)	Severe
>40	Obese class III (morbidly obese)	Very severe

4.1 Practical considerations and useful measurements

It is important to note that BMI does not take account of variations in stature, frame or body composition. Other methods can differentiate between weight due to muscle and weight due to fat. This is important because intra-abdominal fat is linked to an increased risk of developing heart disease or developing Type 2 diabetes mellitus. Measurements such as waist circumference, the ratio of waist to hip circumference and the ratio of waist circumference to height squared are complementary to BMI and identify people at increased cardiovascular risk ^{6,7}.

Waist circumference is measured half way between the lowest point of the rib cage and the iliac crest.

Weighing scales should be calibrated regularly and be capable of weighing a person of up to 200kg.

5.0 THE CURRENT PATTERN OF OBESITY AND CARE IN NORTHERN IRELAND

5.1 Background

The most recent data in Northern Ireland shows that more than half the population is either overweight or obese – see Table 2.

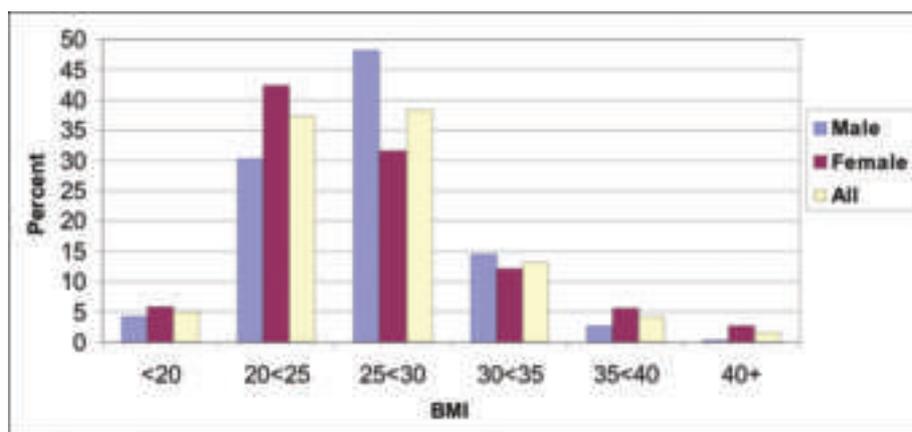
Table 2. Numbers and percentage of all men and women aged over 16 years with obesity in Northern Ireland (Northern Ireland Health and Social Wellbeing Survey, 1997)

	Obesity %	Population	Obese population
MALE	17.3%	604,071	104,504
FEMALE	20.1%	653,742	131,402

There are over 500,000 people ‘overweight’ and a further 236,000 people ‘obese’ in Northern Ireland.

These figures are further subdivided in the graph below.

Table 3. The Body Mass Index grouping of respondents (Northern Ireland Health and Social Wellbeing Survey, 1997)



The North/South Ireland Food Consumption Survey, published in 2001 by the Food Safety Promotion Board, showed that two thirds of men and almost half of women are overweight or obese. The Young Hearts Survey showed that around 20% of adolescents are overweight or obese, up from 15% ten years ago.

More information is given in Appendix 4.

5.2 Cost implications of obesity in Northern Ireland

Costs associated with obesity in Northern Ireland are extensive. These costs are largely related to treating disease attributable to obesity. If nothing is done over the next 20 years to tackle obesity, the cost to the DHSSPS will be £900m. This compares with a cost of £690m if 'Investing for Health' targets are achieved (see Appendix 5).

5.3 Causes of obesity and factors promoting weight gain

The pathogenesis of obesity can be considered as genetic or environmental and there are a number of factors that make obesity more likely:

- Inactivity
- High calorie (energy), high fat diets
- Family history of obesity

Information on molecular mechanisms for obesity, some of which stimulate food intake and some of which decrease food intake, is advancing.

5.4 Health consequences of obesity

1. Heart and peripheral vascular disease. The risk of coronary heart disease is doubled if BMI is over 25kg/m² and quadrupled if BMI is over 30kg/m². The incidence of peripheral vascular disease is increased.
2. Diabetes. People with a BMI over 35kg/m² have a forty times greater risk of developing Type 2 diabetes mellitus than non-obese people.
3. Hypertension. Blood pressure rises with obesity and this leads to an increased incidence of stroke.
4. Cancer. Obesity increases the risk of developing certain cancers, such as cancer of the large bowel and endometrial cancer.
5. Diseases of the locomotor system. The incidence of osteoarthritis and varicose veins increase with obesity.
6. Others. There is a link between obesity and infertility. Sleep apnoea and psychological distress (social isolation, low self-esteem) are more common with obesity.

5.5 Benefits of treatment

Treating obesity has health consequences, including decreased risk of both premature death and of chronic conditions that reduce quality of life. While severe obesity is associated with a 12-fold increase in mortality, a small reduction in weight of 10% can have useful benefits for health³ (Table 4).

Table 4. Benefits of a 10% weight loss in patients with co-morbidities^{4,8}

Mortality	20-25% fall in total mortality 30-40% fall in diabetes-related deaths 40-50% fall in obesity-related cancer deaths
Blood pressure	Fall of approximately 10mmHg in both systolic and diastolic values
Diabetes	Reduces risk of developing diabetes by >50% Fall of 30-50% in fasting glucose Fall of 15% in HbA1c
Lipids	Fall of 10% in total cholesterol Fall of 15% in LDL Fall of 30% in triglycerides Increase of 8% in HDL

The aim is to reduce weight and to maintain that reduction. As weight is lost, so risk of other associated illness decreases. Targets for weight loss should be agreed with each patient, however often a goal of 10% weight loss after six months is suitable⁴.

5.6 Treatment overview

Many patients can be managed in primary care by initiating and maintaining weight loss through on-going changes in lifestyle. Weight management should be built into the General Medical Services contract. The initial approach is common to primary and secondary care, starting with a full medical consultation and using a multidisciplinary team approach.

There should be clear advice on physical activity, nutrition and diet therapy, behavioural change and support group availability. The effectiveness of these interventions and the value of drug therapy has been summarised in a recent paper which reviewed all available randomised controlled trials⁹.

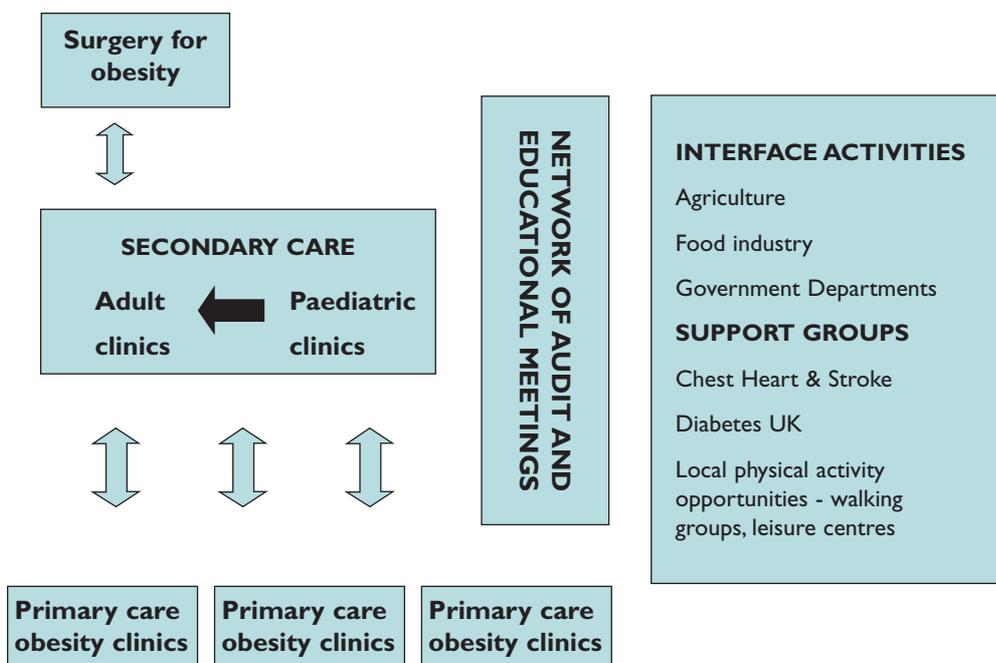
Consideration should be given to the use of drug therapy for those who meet treatment criteria. Surgical referral may be appropriate for a minority, following the NICE guidelines¹⁰.

Robust arrangements should be in place for continuing support and follow up.
For patients with high levels of psychological distress or evidence of disordered eating, cognitive behavioural therapy is advised from an appropriately trained health care professional.

Children who are overweight or obese can be identified within primary care and should be initially managed by the primary care team. However it is important that the child and the family should want help and should be prepared to make lifestyle changes. Children can be referred on to the secondary care community obesity teams, if necessary. These should be set up as described below under ‘Strategy of Care’.

6.0 OVERVIEW OF RECOMMENDED OBESITY SERVICES IN NORTHERN IRELAND

Table 5. Overview of proposed obesity services in Northern Ireland



6.1 Strategy of care

These guidelines outline a strategy for the management of obesity in secondary care, acknowledging the essential role of primary care in obesity management. They also cover clinic structure, referral protocols and approaches to treatment. A schematic representation of our approach is shown in Table 5 and indicates how many of the components of obesity management interrelate. The interventions proposed have been shown to work in many trials and recommendations. The recent review by Avenell et al of randomised control trials shows that the addition of orlistat or sibutramine, exercise and behaviour modification to dietary advice results in greater long-term weight loss ⁹.

6.1.1 Awareness

The Ministerial group on intergovernmental strategy for public health should establish a working party to create an environment that is less conducive to developing obesity. Partnerships should be encouraged between public, private, voluntary and community sectors to develop a holistic approach to the treatment and prevention of obesity. Guidelines should be developed regionally for obesity management in primary care. In order to effectively treat obesity in secondary care, awareness of the methods of detection and treatment of obesity should be raised in primary care through the General Medical Services contract, and in

secondary care through education and training of all staff. All clinics treating obesity should be aware of the availability of local slimming clubs, leisure centres and support groups, which may offer physical activity opportunities for the obese and in that way act as advice centres.

Prevention of obesity

Prevention of obesity is not the primary remit of a specialist obesity service based in secondary care. The DHSSPS 'Fit Futures' programme has a role in obesity prevention.

6.1.2 Obesity management in primary care

Every general practice should take the opportunity to actively screen for overweight and obesity by calculating the patient's BMI and waist circumference.

Likely treatment groups will include:

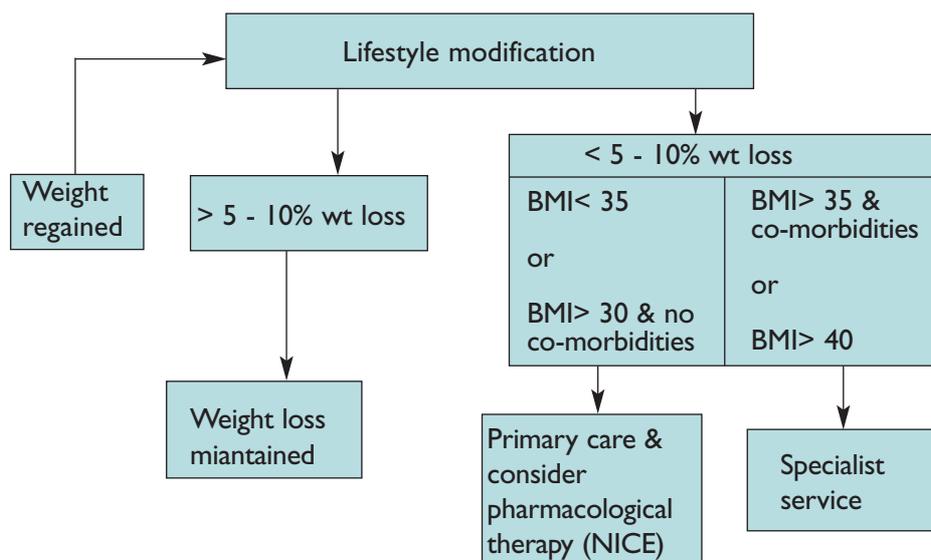
- a) Patients with BMI $>30\text{kg/m}^2$ and children who exceed the age related BMI cut-off.
- b) Patients with BMI $>28\text{kg/m}^2$ with co-morbidities e.g. COAD, ischaemic heart disease. Patients with any degree of overweight coinciding with diabetes, other severe risk factors or significant disease.
- c) Families, where a child or other member is treated for obesity. The family as a whole will need to be considered for treatment.
- d) Patients who self refer, where appropriate.

Each identified patient should be offered a structured education programme and treatment delivered by a trained multidisciplinary practice team. The patient should be assessed to establish a baseline, determine any illness and exclude secondary conditions or co-morbidities. Initial assessment by the General Practitioner will be followed by involvement of as many members of the team as appropriate but this will include a practice nurse, dietitian, exercise advisor and behavioural change advisor.

The patient should be given verbal and written dietary advice, an exercise routine and background information on obesity. Arrangements must be made for ongoing follow-up by some member of the team. Most patients would benefit from an opportunity to consider a family orientated weight reduction programme, if available within the practice. Names and addresses of the four Health Board physical activity co-ordinators are given in Appendix 6. The physical activity co-ordinators are an excellent point of contact for primary care teams to call on for local advice on exercise opportunities for patients.

If after 3-6 months, a 5-10 % weight reduction or reduction in waist measurement has not been achieved, then it will be appropriate to consider anti-obesity drug therapy or referral to the secondary care obesity clinic. This approach to treatment is set out in Table 6.

Table 6. Weight management pathway for primary care



Overweight children and adolescents can be identified using the BMI, relating values to reference standards for age and sex and can often be managed in primary care. Assessment criteria, referral criteria and treatment options for children are given in Appendix 7.

Management decisions depend on:

- The degree of overweight
- Age
- Level of commitment to change by child and family

6.1.3 Establishment of specialist services

Clinic structure for obesity management for adults in secondary care

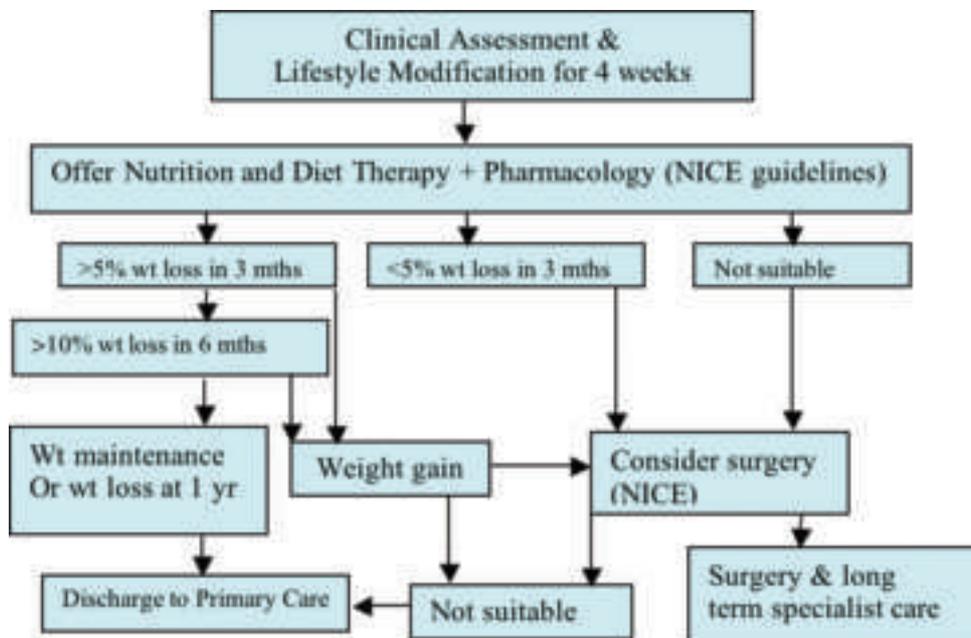
A network of obesity clinics should be established in the main Northern Ireland Hospitals (Royal Victoria Hospital, Belfast City Hospital, Ulster Hospital, Altnagelvin Hospital, Antrim Hospital, Craigavon Area Hospital and the Erne Hospital) and funding should be provided to allow them to be set up and operate efficiently. In addition, one community based paediatric clinic should be established in each Board area. The clinics will receive referrals from other

secondary care settings and from primary care. In general, referrals will originate from medical practitioners although referrals might come from other healthcare practitioners, according to local protocols. The secondary care obesity clinics will accept patients who meet agreed referral criteria. They will work to common standards, treatment goals and multidisciplinary approaches, although detailed protocols may vary between clinics.

Clinic function / pharmacological therapy

- Clinics will follow a multidisciplinary approach to weight management and will be run by a multidisciplinary team, which will include a clinician from general medicine, metabolic medicine or diabetes with an interest in obesity, a dietitian, nurse, a clinical psychologist and an advisor in physical activity. The patient can expect to receive written dietetic and exercise advice. Every patient is an individual and the treatment recommended should be tailored to the specific needs of each patient.
- The detailed protocols to be followed will be determined and agreed at each individual clinic, but there will be an initial clinical assessment, to include identification of secondary causes of obesity, co-morbidities and identification of risk factors. This baseline health assessment is described in detail in Appendix 8. Management of risk factors will be offered or referrals made.
- Weight management will be achieved by a multifactorial approach. This will include nutrition and diet therapy, provision of psychological support and physical activity advice. The approaches that may be used in delivering these interventions are discussed in other documents. Following the initial assessment, lifestyle modification will be employed for the first four weeks, and pharmacotherapy will then be considered at the second visit.
- Patients referred to the clinic will generally be followed up for a year and they will be reviewed monthly by appropriate members of the multidisciplinary team. Patients will then be discharged from the clinic for follow-up in primary care, unless there are unusual circumstances.
- All clinics will audit their outcome data on an annual basis. With regard to weight management, the main goal should be to achieve at least 10% weight reduction by six months. The percentage of patients achieving at least 5% or 10% weight loss at three months, six months and one year should be recorded.
- Audit data should be circulated amongst obesity clinics, and there should be an annual meeting at which data is presented and discussed to share practice and improve education. This will allow sharing of protocols and experience and will lead to adoption of best practice. The Regional Multiprofessional Audit Committee (RMAG) and the Northern Ireland Regional Audit Advisory Committee (NIRAAC) may help with specific aspects of audit.

Table 7. Nutrition and diet therapy in secondary care



6.1.4 Anti-obesity drug therapy

- Pharmacological therapy is increasingly being used as an adjunct to diet and lifestyle changes. It is important that patients understand that drug therapy does not represent a ‘stand-alone’ treatment
- Anti-obesity drugs currently available are orlistat and sibutramine, which should both be used according to the criteria outlined by the National Institute for Clinical Excellence (NICE 2001) and The Royal College of Physicians of London (see Appendix 9). The new agent, rimonabant, soon to be launched in the UK may prove very useful
- Anti-obesity drugs should not be a substitute for drug treatment of other co-morbid factors, particularly when several cardiovascular risk factors co-exist
- Patients should not be prescribed anti-obesity drugs without a clinical assessment to exclude medical or psychiatric contra-indications and must not stay on the drug longer than the licensed maximum period. They must be monitored regularly whilst on treatment to ensure effectiveness for continued use, as not everyone responds to drug therapy
- There is increasing evidence that psychological factors may be useful for predicting outcome of drug therapy. It has been demonstrated that patients with realistic expectations, a sense of perceived control, high motivational state, absence of anxiety and absence of depression are more likely to achieve good outcome on drug therapy¹¹

6.1.5 Dietary recommendations

Patients referred for weight management require dietary assessment prior to commencing a weight management programme. Diets of 1,000-1,200kcal have been traditionally prescribed but these are very restrictive. It is important to estimate individual energy requirements, so the diet energy prescription is more realistic which may result in improved weight loss¹². The Scottish Intercollegiate Guideline Network (SIGN) recommend a 600kcal/day energy deficit based on estimated initial maintenance requirements. This may best be achieved by a reduction in overall fat intake. Monitoring is also essential. A standardised diet sheet should not be handed out to obese patients. The component of dietary assessment, management and monitoring are outlined below.

Each secondary care clinic needs a full time specialist obesity dietitian to co-ordinate care and provide clinical input.

Table 8. Nutrition and diet therapy in obesity management

Clinical Nutrition Therapy in Obesity Management		
Create a programme tailored to the needs of an adult rather than a standardized eating plan		
ASSESSMENT Weight history BMI Waist circumference Co-morbidity Previous dieting experience Social history including shopping & food preparation Diet history – meal & snack behaviours & food choices Estimate energy requirements Beliefs about food & weight loss Treatment expectations Motivation	MANAGEMENT 500 – 600kcal energy deficit diet Modified eating habits to provide nutritional requirements compatible with good health i.e. low fat, low sugar, high fibre, low salt Written & verbal information given Individualised eating plan Client & dietitian agree realistic targets: - energy intake, weight, activity, lifestyle changes Advice consistent with promotion of equality & diversity Review arrangements	MONITORING Regular reviews Assessing progress e.g. weight eating habits attitude to food activity Review of agreed targets Ongoing support Referral as per care pathway to specialist care, pharmacology & surgical management where indicated

Low calorie diets produce an average weight loss of 8% over 3-12 months compared to controls¹³.

Other dietary approaches

These should be evidence based.

6.1.6 Behavioural modification for obesity management

Patients referred for weight management treatment should be screened for depression. Estimates of the incidence of depression in the obese population vary. There is no simple association between depression and obesity. It is often difficult to distinguish whether people are obese because they are depressed or are depressed because they are obese. However depression should be effectively addressed before lifestyle intervention begins.

Eating disorders

- In community samples 3-9% of obese people fulfil the diagnostic criteria for binge eating disorder ¹⁴, as do 10-30% of people in weight reduction treatments ¹⁵. Research suggests obese people with binge eating disorder tend to have earlier onset and more severe obesity, more frequent weight fluctuations and earlier onset of Type 2 diabetes than obese people without binge eating disorder. In addition binge eaters present with more psychological distress, such as anxiety and depression ¹⁶

Diagnostic Criteria for Binge Eating Disorders ¹⁷

- Recurrent binge eating.
- Associated with 3 or more of the following: rapid eating, eating till too full, eating large amounts when not hungry, eating alone because of feeling low, embarrassed or disgusted.
- Marked distress during binge eating.
- Binge eating occurs at least twice a week a week for 6 months.
- No regular use of compensatory behaviours.

NB - Obesity not part of the definition.

- The only evidence-based interventions for binge eating are interpersonal therapy – which is a psychotherapeutic approach that concentrates on interpersonal relationships, and cognitive behavioural therapy. Cognitive behavioural therapy attempts to address the underlying cognitions (beliefs, attitudes etc) that underpin binge eating and explores the emotional factors that precipitate and maintain binge-eating patterns. Cognitive behavioural therapy aims to overcome the various psychological obstacles that impede behavioural change and the maintenance of effective weight-control behaviour ¹⁸. Short-term trials using a group behavioural approach lose 9% of their initial body weight in 20 weeks of treatment ¹⁹.

Avenell points out that adding behaviour therapy to diet alone is associated with a weight change at 12 months of 7.67kg in the randomised controlled studies she examined ⁹. Adding behaviour therapy to sibutramine, exercise and diet was associated with a 10.69kg weight reduction at 12 months in a study group of women ¹⁹

- Such interventions should ideally be provided by a clinical psychologist – or other suitably trained professional – within the secondary care centres. In addition working relationships should be developed with Regional Eating Disorder services

Social disadvantage

- Obesity is more prevalent in the more disadvantaged sections of the community ²⁰. Obesity services should therefore develop strong working relationships with community teams, social services and voluntary groups in order to address housing, financial, vocational and educational difficulties faced by this population

6.1.7 Referral protocols to secondary care

Referral to a secondary care obesity clinic should be considered in adults with –

- a) Class III morbid obesity (BMI >40 kg/m²) **or**
- b) Class II moderate obesity (BMI >35 kg/m²) accompanied by significant co-morbidity.

In either case there should have been failure to respond to lifestyle or pharmacological intervention in primary care or other secondary care settings before the patient is seen at a secondary care obesity clinic.

6.1.8 Referrals for surgery

People being proposed for surgery for morbid obesity should have a full assessment by the surgeon and other healthcare professionals who will be involved in their care ²⁰. This would include the physician with an interest in obesity management, the psychologist, dietitian and exercise specialist. Attention needs to be given to respiratory competence during sleep in these patients, as this can be a problem following surgery. Psychological and specialist dietetic advice is lifelong after surgery.

- a) It is important that surgery is seen as part of the solution and not a solution in itself.

- b) All surgical patients must change their eating patterns substantially and all require professional dietetic support to achieve this. Pre-surgical psychological assessment and post-surgical follow-up is vital as part of surgical treatment.
- c) Obesity surgery will be available as a treatment option in the Royal Victoria Hospital, with surgery being performed by appropriately trained and experienced surgeons. The choice of surgical procedure will be made by the surgeon, taking into account the patient's individual circumstances, current evidence and relevant NICE guidelines ¹⁰.
- d) Referrals for surgical assessment will only be accepted from secondary care obesity clinics.
- e) Referral for surgery will be considered if the individual:
- Has been receiving intensive management in a specialised hospital obesity clinic
 - Is aged 18 years or over
 - Has tried all appropriate and available non-surgical measures adequately but has not been able to maintain weight loss
 - Has no specific clinical or psychological contraindication to this type of surgery
 - Is generally fit for anaesthetic; and
 - Understands the need for, and is agreeable to, long-term follow-up
- f) Follow-up of surgical patients will be long-term at the surgical centre. Outcome data will be recorded and audited on an annual basis and presented at the annual meeting of obesity clinics.

Table 9. Nutrition and diet therapy in bariatric surgery

Clinical Nutrition Therapy Bariatric Surgery in a Specialist Centre		
<p>Pre Surgery</p> <p>Ongoing medical nutrition therapy ± pharmacology therapy</p> <p>Patients educated with respect to dietary implications post surgery & requirements for long term professional follow-up</p> <p>Assessed against NICE criteria</p> <p>Prepare puree meal plans for immediate post surgery period</p>	<p>Surgery</p> <p>Management & education of nutritional requirements post surgery</p> <p>Vitamin & mineral supplementation as appropriate</p> <p>Lifestyle modification</p>	<p>Post Surgery</p> <p>Continued management & education of nutritional requirements post surgery</p> <p>Assessing progress e.g.</p> <ul style="list-style-type: none"> weight eating habits attitude to food activity <p>Monitoring & treating chemical pathology as required</p> <p>Lifestyle modification</p>

6.1.9 Physical activity

- 25% of adults in Northern Ireland are chronically sedentary, taking less than 20 minutes of physical activity per week
- Physical activity combined with the restriction of energy intake leads to greater fat loss than either treatment on its own. Adding physical activity to a low calorie diet increases the loss of fat mass and conserves muscle mass. Overweight and obese individuals must increase activity gradually with time and reduce energy intake to lose significant weight. Recent evidence suggests that 45 to 60 minutes of daily exercise at an intensity equivalent to brisk walking, may be optimal for weight loss
- Low to moderate physical activity is safe for the majority of people who have previously been physically inactive. Physical activity sessions for the obese should be available in leisure centres. Daily living activities like walking and climbing stairs are the best physical activities for obese individuals. Intense exercises like gym sessions or jogging are less suitable for obese individuals. Physical activity prescription requires care and some guidance is given in Appendix 10
- People with cardiac disease or uncontrolled hypertension should discuss their physical activity prescription with a doctor. Some guidance is given in Appendix 11
- Physical activity should be enjoyed, is a long-term commitment and needs to be tailored to the individual

7.0 CHILDHOOD OBESITY

7.1 Background

Childhood obesity is becoming an increasing public health problem in Northern Ireland. One study on children's weight ²³ which looked at the prevalence and awareness of excess weight in 13 and 14 year olds in Northern Ireland found that 16% of boys were overweight and 4% were obese. The proportion of girls who were overweight was also 16%, however the prevalence of obesity in girls was lower at 2%. Appendix 7 gives assessment, referral and treatment criteria for children and adolescents, together with some policy recommendations to address childhood obesity. The DHSSPS has set up a group to look at childhood obesity. It is titled 'Fit Future': The task force on obesity in children and young people.

The cardiovascular impact

- High blood pressure, dyslipidaemia, and hyperinsulaemia are common
- Cardiovascular morbidity and mortality in adulthood have their roots in childhood obesity

Impact for other diseases

- Asthma and Type 2 diabetes are associated with childhood obesity
- Obesity predisposes children to accelerated pubertal and skeletal development and to orthopaedic disorders such as slipped capital femoral epiphysis

The psychological impact

- Many children have low self-esteem and behavioural problems
- Obese children and adolescents frequently experience discrimination and ridicule that has significant impact on their long-term psychological wellbeing

Socio-economic impact

- Obesity in adolescents may have an adverse effect on educational attainment and future income particularly in women
- Two-thirds of obese children aged 10 years and older will become obese adults resulting in 5-20 years of life lost

- The societal costs are also considerable with obese individuals incurring a 36% increase in patient costs and a 77% increase in medication use compared with spending for healthy weight individuals ²⁴

Treatment

- Childhood obesity is difficult to treat
- Dietary education must be combined with lifestyle interventions that increase physical activity
- The whole family must be involved in the lifestyle programme

7.2 Diagnosis in children and adolescents

In children, body mass index (BMI) should be used. The BMI is lower in children and adolescents than in adults, so the adult obesity definitions should not be applied. In addition, the BMI changes during childhood and differs between boys and girls, so age and sex specific reference charts are necessary to interpret the measurement. There are national reference data for BMI in the UK. Serial measurements of BMI plotted on the chart can assess changes over time. It has been suggested that children should have serial BMI measurements taken by their general practitioners and if they exceed the 85th % then action is recommended. Currently obesity is defined as having a BMI >95th % for age. A more recent term “at risk for obesity” has replaced “overweight”, this term is applied to children and adolescents with a BMI between the 85th % and 95th % for age.

7.3 Obesity management for children and adolescents in secondary care - clinic structure

Childhood obesity is difficult to treat and there remains a great deal of uncertainty in a number of areas. In addition there is widespread scepticism among health professionals on the effectiveness of treatment. Several recent studies have reviewed the current evidence ^{25,26}.

Referrals for childhood obesity from primary care can best be managed in a community setting. Initially there should be a community based paediatric obesity clinic set up in each of the Health and Social Services Boards. This clinic would be led by a Consultant Community Paediatrician or a Hospital Paediatrician and would include a paediatric dietitian, a clinical psychologist and a physical activity specialist. The clinic should have an established link to one of the main secondary care centres set up for adult obesity management.

8.0 IMPLEMENTATION OF THE GUIDELINES

8.1 Workforce planning

Future workforce planning should include sufficient dietitians, clinical psychologists, physicians, surgeons and physical activity advisors to implement these guidelines effectively – at both community and secondary level.

8.2 Development

Ongoing surveillance methods for the population should be established, such as a longitudinal anthropometric survey for Northern Ireland. It is important that mandatory annual audit for obesity management in secondary care is initiated and that links are established with academia to derive the evidence base for best practice.

8.3 Training

Health professionals working in weight management need training in medical aspects of obesity, nutrition and diet therapy, physical activity counselling and psychological aspects of weight management. The training needs of individuals will vary depending upon their involvement in obesity management. Establishing appropriate training programmes for the management of obesity in Northern Ireland will be required.

Teaching for Specialist Registrars and succession planning for key members of the service needs to be organised. Links to other UK centres need to be established.

8.4 Costs of the implementation of guidelines

The start up and ongoing running cost of all secondary care obesity services will require new funding. Premises have not been included in the costs, although access to outpatient facilities will be required. The centre for bariatric surgery will have costs not seen in any other location.

There will also be costs associated with the referral of patients to leisure services for physical activity programmes.

8.5 Specialist obesity services for adults

Start up costs

Start up costs are required for the provision of a computerised clinical database, a set of suitable scales and other equipment for obesity management.

Staff costs of clinics

Highly Specialist Dietitian - One WTE per specialist centre initially.

Clinical psychologist - One WTE practitioner.

Clerical support - One WTE clerical officer per specialist centre initially.

Nurse - 0.1 WTE per specialist centre initially.

Exercise specialist / Experienced physiotherapist - 0.5 WTE per specialist centre initially.

Medical staff - One consultant physician 2 sessions.

Running costs of the surgical service

The costs of the surgical service would cover the requirements below:

One operation per week.

Theatre time and a high dependency unit bed for 1 day immediately after operation.

One WTE highly specialist obesity dietitian.

One clinical psychologist.

Surgical and anaesthetic costs associated with the procedure.

8.6 Paediatric services

Start up costs

Start up costs are required for the provision of a computerised clinical database, a set of suitable scales and other equipment for obesity management.

Staff costs of clinics

Specialist paediatric dietitian – One WTE per board initially.

Clinical psychologist - One WTE practitioner.

Clerical support - One WTE clerical officer per specialist centre initially.

Paediatric Nurse - 0.1 WTE per clinic initially.

Exercise specialist / Experienced physiotherapist - 0.5 WTE per specialist centre initially.

Consultant paediatrician - One consultant paediatrician 2 sessions.

9.0 AUDITS ON OBESITY

It is proposed that there will be full participation of all secondary care clinics and by all GP practices that provide obesity management services in an annual audit programme. Annual meetings should be held to discuss progress and to improve the service. Good audit practice is supported by the Regional Multiprofessional Audit Group (RMAG) and the Northern Ireland Regional Audit Advisory Committee (NIRAAC), based in the Belfast City Hospital and the Northern Ireland Medical and Dental Training Agency (NIMDTA) respectively and would include designs based on evidence of good practice, closing the audit loop and demonstrating service improvement.

It is suggested that any aspect of this document can be used as a basis for audit but many of the important issues are covered in Appendix 12. Some audits may become regular features of each clinic and might include:

- An audit of effectiveness of obesity management in secondary care
- Effectiveness / % weight loss at 3 and 6 months
- Referral rates to secondary care
- DNA rates at primary and at secondary care
- Training of staff taking part in obesity management
- GP audit of high-risk groups i.e. in people with Type 2 diabetes, ischaemic heart disease and hypertension
- Appropriate drug use audit

10.0 SUMMARY OF RECOMMENDATIONS

The recommendations of CREST have been grouped into a series of headings:

10.1 Awareness

- The Ministerial group on intergovernmental strategy for public health should establish a working party to create an environment that is less conducive to developing obesity
- Encourage partnerships between public, private, voluntary and community sectors to develop a holistic approach to the treatment and prevention of obesity
- Guidelines should be developed regionally for obesity management in primary care
- Raise awareness in primary and secondary care of the methods of detection and treatment of obesity through education and training of all staff
- All clinics treating obesity should be aware of the availability of local slimming clubs, leisure centres and support groups, who may offer physical activity opportunities for the obese and in that way act as advice centres

10.2 Setting up specialist services

- Establish a clinical network of secondary care centres for the treatment of obesity in adults
- Set up a community paediatric obesity clinic in each Health Board
- Set up a bariatric surgery centre

10.3 Patient Management

- A standardised computerised patient database should be developed and used regionally to facilitate patient monitoring and audit
- Establish protocols for referral to secondary care and for surgery

10.4 Physical activity

- The development of sustainable, affordable physical activity opportunities in the community needs to be fully addressed
- Exercise specialists or appropriately trained physiotherapists should be available to support secondary care initiatives for obesity management
- Physical activity prescription should include free access to leisure centres while the patient is attending specialist clinics and for three months after discharge

10.5 Workforce planning

- Future workforce planning should include a sufficient number of dietitians, clinical psychologists and physical activity advisors – at both community and secondary level

10.6 Service development

- Establish ongoing surveillance methods for the population, such as a longitudinal anthropometric survey for Northern Ireland
- An implementation group should be established to guide the development of the service
- Initiate mandatory annual audit for obesity management in secondary care
- Establish links to academia to derive the evidence base for best practice

10.7 Training

- Promote pre-registration training in weight management for health professionals
- Establish postgraduate training in weight management for health professionals
- An internet site should be supported and maintained for education in obesity in Northern Ireland

11.0 USEFUL ADDRESSES AND CONTACT POINTS

The web site set up at www.honni.qub.ac.uk/weightmanagement has information about references and resources for obesity management. Appendix 6 has contact details for the physical activity co-ordinators in each Health Board.

Arthritis Care.

Address: 18 Stephenson Way, London NW1 2HD.

Tel: 020 7380 6500

Web address: www.arthritiscare.org.uk

British Dietetic Association.

Address: 5th Floor Charles House, 148-149 Great Charles Street, Queensway, Birmingham B3 3HT.

Tel: 01727 844 433

Web address: www.bda.uk.com

Chest, Heart & Stroke Association.

Address: 21 Dublin Road, Belfast BT2 7HB.

Tel: 028 9032 0184

Web address: www.nichsa.com

Diabetes UK Central Office.

Address: 10 Parkway, Camden Town, London NW1 7AA

Tel: 020 7224 1000

Web address: www.diabetes.org.uk

Diabetes UK NI Office.

Suite 8, Bridgewood House, Newforge Lane, Belfast BT9 5NW

Tel: 028 9066 6646

E-mail: n.ireland@diabetes.org.uk

Irish Heart Foundation.

Address: 4, Clyde Road, Ballsbridge, Dublin 4.

Tel: 00 353 1668 5001.

Web address: www.irishheart.ie

National Institute for Clinical Excellence (NICE)

Address: 11 Strand, London WC2N 5HR.

Tel: 0870 1555 455

Web address: www.nice.org.uk

National Obesity Forum.

Address: PO Box 6625, Nottingham NG2 5PA.

Tel: 0115 8462 109

Web address: www.nationalobesityforum.org.uk

Northern Ireland Medical and Dental Training Agency

Address: Beechill House, 42 Beechill Road, Belfast, BT8 7RP.

Tel: 028 9040 0000

Web address: www.nimdta.com

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APPENDIX 1

Membership of the CREST Management of Obesity Sub-Group

Chairman

Dr Tom Trinick
 Consultant Chemical Pathologist and General Physician, Ulster Community & Hospitals Trust

Members

Dr Clare Adams
 Consultant Psychiatrist, Department of Psychotherapy, Woodstock Lodge, 1 Woodstock Link, Belfast

Mrs Geraldine Bleakney
 Head of Health Promotion Commissioning, EHSSB

Professor Colin Boreham
 Professor of Sports Studies, University of Ulster

Mr Barry Clements
 Consultant Surgeon, Royal Hospitals

Dr Mark Davies
 Clinical Psychologist, Belfast City Hospital

Mr Andrew Dougal
 Chief Executive, Northern Ireland Chest, Heart & Stroke Association

Mr Andrew Kennedy
 Consultant Surgeon, Royal Hospitals

Mr Diarmiud Kennedy
 Librarian, Royal Hospitals

Dr Clodagh Loughrey
 Consultant Chemical Pathologist, Belfast City Hospital

Miss Sharon Martin
 Deputy Nutrition and Dietetic Manager, Belfast City Hospital

Dr Carolyn Mason
 Nursing Officer, DHSSPS

Dr David McCance
 Consultant Endocrinologist, Royal Hospitals

Ms Grainne McMacken
 Community Dietitian, Iveagh Dietetics, Belfast

Sr. Eileen McVeigh

Clinical Nurse Specialist, Department of
Psychotherapy, Woodstock Lodge, Belfast

Ms Sharon Patton

Economics Branch, DHSSPS

Dr Selbert Rainey

General Practitioner, Toome Surgery, Toomebridge

Dr Michael Smith

Consultant Paediatrician, Craigavon Area Hospital

Mr Caspar Swales

Economics Branch, DHSSPS

Miss Lynne Thomas

Chief Dietitian, Ulster Community & Hospitals
Trust

Professor Ian Young

Consultant Chemical Pathologist, Royal Hospitals

Secretariat

Mr Gary Hannan

APPENDIX 2

Other initiatives with an influence on obesity

1. Strategic context

Investing for Health - DHSSPS (March 2002)

Identifies obesity as a key area for action with the specified target being "To stop the increase in levels of obesity in men and women so that by 2010 the population of men who are obese is less than 17% and of women, less than 20% (IFH p114), (1997 Baseline of 17% and 20%)".

National Service Framework for Diabetes - Delivery Plan

Published by DoH 2002.

Makes clear reference to the need to address overweight and obesity.

Report of the Northern Ireland Taskforce on Diabetes

Published by CREST/Diabetes UK 2003.

The prevention and treatment of obesity are integral parts of the 'prevention and early detection' and the 'care, monitoring and treatment' areas for development identified in the blueprint.

Tackling Obesity in England

Published by National Audit Office, 2001.

The report recommended the development of more comprehensive and co-ordinated strategies and action plans across England.

Tackling Obesity: A toolbox for local partnership action

Published by Faculty of Public Health Medicine, 2000.

Provides an overview of the 'obesity epidemic' in the UK and outlines the evidence base for key interventions at community, group and individual level.

National Service Framework for Coronary Heart Disease

Published by DoH 2000.

Identifies promoting healthy eating and reducing overweight and obesity as specific areas for action.

Northern Ireland Physical Activity Strategy (Health Promotion Agency, 1996)

This strategy states that increasing physical activity to recommended levels could reduce chronic heart disease by a third, reduce stroke by a quarter and avoid around one third of Type 2 diabetes. It also acknowledges that levels of physical activity in Northern Ireland are well below that which is recommended for a cardio-protective effect. Eight out of 10 women and 7 out of 10 men in the province are not taking the recommended 30 minutes of moderate physical activity most days of the week.

Northern Ireland Food and Nutrition Strategy (Health Promotion Agency, 1996)

This strategy recommended that 'regional initiatives be developed to promote the achievement of a healthy weight with priority given to the prevention of obesity'. However, the strategy has not been implemented and is now being reviewed.

The Scottish Intercollegiate Guidelines Network (SIGN, 1996)

These clinical guidelines acknowledge the importance of preventive strategies in helping reduce the incidence of obesity.

2. Recent data

Northern Ireland Health and Social Wellbeing Survey 2001

55% of respondents aged 16 years and over said they weigh a little more or a lot more than they should (58% of females and 50% of males respectively).

Northern Ireland Civil Service Workforce Health Survey 2000.

Published by NISRA 2002.
(16,651 individuals responded to a questionnaire).

36.8% were classified as overweight (46.6% males and 27.1% females) and 12.2% were classified as obese (13.1% males and 11.2% females). These were calculated based on self reported height and weight.

North/South Ireland Food Consumption Survey (NSIFCS)

Irish Universities Nutrition Alliance, published by Food Safety Promotion Board, Dublin 2001.

1,379 individuals aged 18-64 years old resident in N.I. and R.O.I. studied in 1997-1999. Comprehensive electronic database developed.

18% of those studied were obese (20% men and 16% women) and 39% were overweight (46% men and 33% women). Since 1990, the prevalence of obesity has increased by 67% overall, up 1.25 fold in women (from 13%) and up 2.5 fold in men (from 8%).

Northern Ireland Health and Activity Survey 1994

Published by HMSO 1994.

16% of males classified as obese, 21% of females.
58% of males overweight and 56% of females. Mean waist: hip ratio 0.94 in males and 0.8 in females, 21% of males exceeded the risk threshold for CHD of 1.0 for males and 42% for females exceeded 0.8.

Fit for the Future? A Health Profile of Primary School Entrants in North and West Belfast in 1994

Dr M. Stewart et al.

North and West Belfast Health and Social Services Trust.
A group of 240 Primary School entrants from 58 primary schools were surveyed. Fourteen percent of the children were above the 90th centile for weight: height and 6% were greater than the 97th centile.

Estimates for Food Macro Nutrient Intake in a random sample of Northern Ireland adolescents

Strain et al 1994. British Journal of Nutrition 72: 343-352.

Of a group of 15 year olds, 24% of males and 30% of females were at excess risk of CHD due to excess body fat.

Coronary Risk in School Children

Boreham et al 1993. Arch. Dis. Childhood 68: 182-186.

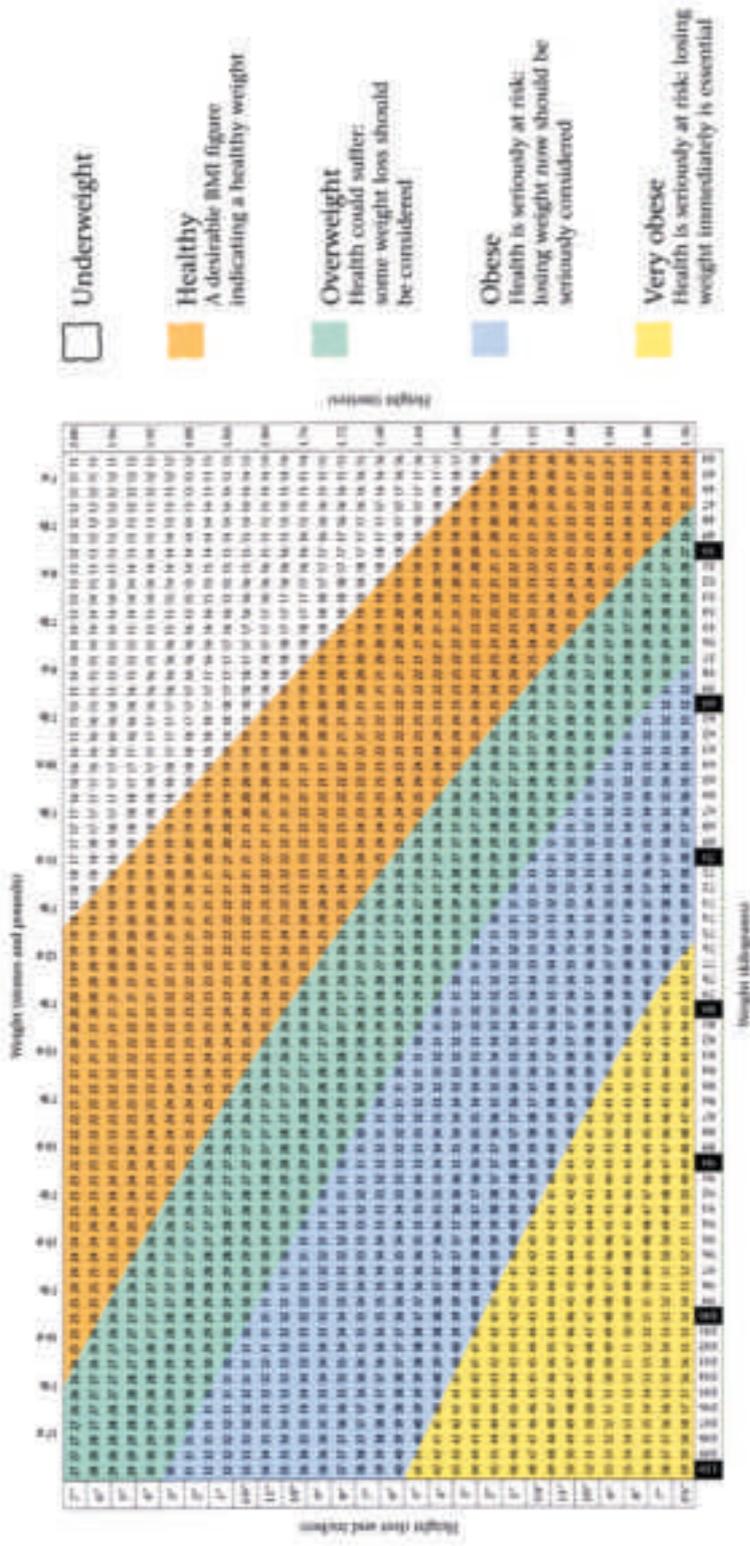
34% of 12-year-old boys and 18% of 12-year-old girls at risk of CHD due to excess body fat.

APPENDIX 3

Figures for BMI and waist measurements

Graph allowing easy calculation of BMI

BMI CALCULATOR



Relationship between waist circumference and morbidity

	Ideal	Increased risk	Greater risk
male	< 94cm	94 – 101cm	>102cm (Caucasian) >90cm (Asians)
female	<80cm	80 – 87cm	>88cm (Caucasian) >80cm (Asians)

BMI range for adult Asians

The BMI values for obesity, in kg/m², in Asians differ from Europeans and the classification used for Asians is given below.

Underweight	<18.5kg/m ²
Normal	18.5 – 22.9
Overweight	>23
At risk	23 – 24.9
Obese 1	25 – 29.9
Obese 2	>30

APPENDIX 4

Background figures on obesity in Northern Ireland

People in lower socio-economic groups, especially women, have an increased risk of obesity. Obesity for women in social class five (25%) is nearly twice that for social class one (14%). Poverty can be an important part of developing obesity. Overweight and obesity are more prevalent in deprived areas, compared with non-deprived areas.

Table 10. The Body Mass Index grouping of respondents by socio-economic group
 Source: Northern Ireland Health and Social Wellbeing Survey, 1997

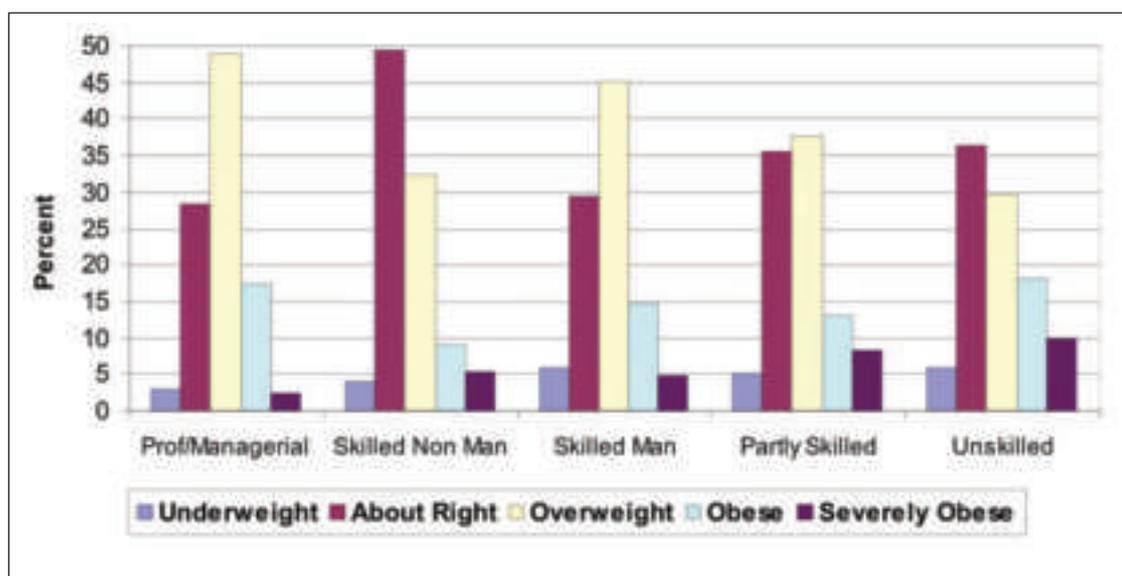


Table 11. Breakdown of overweight / obese by social class for population aged over 16 years

	<i>Professional/ Managerial (%)</i>	<i>Skilled non-manual (%)</i>	<i>Skilled manual (%)</i>	<i>Partly skilled (%)</i>	<i>Unskilled (%)</i>
Overweight	20.6	25.8	24	23.4	6.2
Obese	16.8	23.4	21	26.9	11.9

Table 12. The Mean Body Mass Index of respondents by gender and age
 Source: Northern Ireland Health and Social Wellbeing Survey, 1997

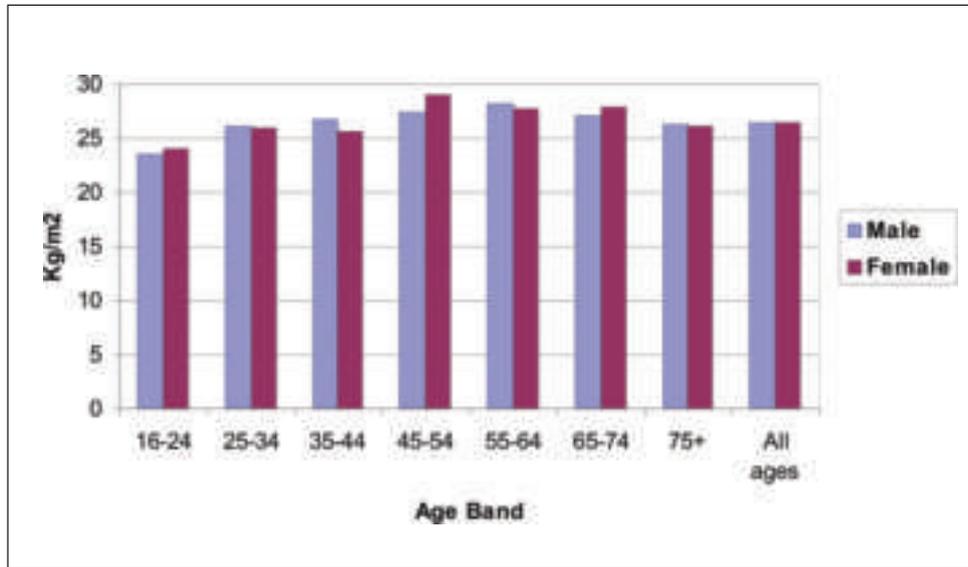


Table 13. Comparison of NI obesity figures with GB figures

	MALE		FEMALE	
	Overweight	Obese	Overweight	Obese
NI (16-64 yr)	48%	17%	30%	19%
England (16-64 yr)	43%	13%	29%	16%
Scotland (16-64 yr)	40%	16%	30%	17%

Table 14. Comparison with previous NI obesity figures to show rate of change

MALES	Overweight (%)	Obese (%)
1994	42%	16%
1997	48%	17%
FEMALES	Overweight (%)	Obese (%)
1994	35%	21%
1997	32%	20%

APPENDIX 5

Cost of obesity in Northern Ireland

Obesity is costing Northern Ireland a lot of money, largely in dealing with disease attributable to obesity. It is possible to calculate the cost of obesity if nothing is done over the next twenty years and to recalculate the cost of obesity if the ‘Investing for Health’, DHSSPS (2002) target is met over the next twenty years ¹. These are set out below.

If the targets set out in ‘Investing for Health’ are met ²:

- 204 lives *per annum* lost
 - 78 deaths from CHD
 - 90 deaths from stroke; and
 - 35 deaths from diabetes
- Total lifetime economic worth £250m
- 2,050 expected number of life years (EYLL³)
- Equivalent to 10 years of life
- 110,000 sick days per annum
- Equivalent to £10.1m lost productivity
- £69m cost to the DHSSPS ⁴
 - £10m GP costs
 - £43m drugs bill
 - £7.5m Outpatients cost
 - £7.5m Inpatients cost, and
 - Equivalent to just under 4% of the DHSSPS total spend

If no change is effected, by 2023 we will experience:

- 286 lives *per annum* lost
 - 116 deaths from CHD
 - 129 deaths from stroke; and
 - 41 deaths from diabetes
- Total lifetime economic worth £340m
- 2,867 expected number of life years (EYLL)
- Equivalent to 9.1 years of life
- 150,000 sick days per annum
- Equivalent to £14.2m lost productivity
- £90m cost to the DHSSPS
 - £13m GP costs
 - £56m drugs bill
 - £10m Outpatients cost; and
 - £10m Inpatients cost

If 'Investing for Health' targets are reached, between now and 2023 we will have saved:

- 823 extra lives gained over 20 years, made up as:
 - 379 less deaths from CHD
 - 387 less deaths from stroke; and
 - 57 less deaths from diabetes

- Total lifetime economic worth saved £938m
- 8,170 expected number of life years (EYLL) saved
- Equivalent to 9.9 years of life saved
- 400,000 extra sick days saved
- Equivalent to an extra £37m lost productivity
- £210m extra costs saved to the DHSSPS over 20 years
 - £30m GP costs
 - £130m drugs bill
 - £25m Outpatients cost; and
 - £25m Inpatients cost

APPENDIX 5 Bibliography

1. Baseline prevalence of being overweight taken from Adult Health & Social Wellbeing Survey, 1997. Trend growth in obesity calculated between Health and Activity Survey 1994 and 1997 levels, extrapolated between 1997 and 2023 to produce 30% increase in obesity. Investing for Health, DHSSPS (2002) targets obesity level to remain same as those established in 1997 into 2010.
2. Economic Costs estimated using “Unhealthy Living Model – 2dn Edition (ULM-2)” developed by Swales, C., Yarnell, J., and Gaffney, B., as yet unpublished. Original model developed to measure costs of physical inactivity, see Swales, C (2001), A health economics model. The cost benefits of the Physical Activity Strategy for Northern Ireland - a summary of key findings, Health Promotion Agency for N Ireland. Confounding variable bias occurs when combining different lifestyle specific, population based epidemiological research and produces overestimates of avoidable deaths. ULM-2 adopts a cautious approach to estimating avoidable deaths by the incorporation of scaling equations that attempt to reduce such confounding variable bias.
3. EYLL – Expected Years of Life Lost calculated include age cohort, gender specific life expectancies, discounted at 1.5% pure time preference rate for lifetime effects (i.e., the offer of another year of life is valued higher by a 21 year old compared to an 85 year old who has already lived the majority of their lifespan) applied to avoidable death calculated across the age cohorts and gender.
4. Adapted for N Ireland by Economics Branch, DHSSPS from Walker, A (2003), “The Cost of Doing Nothing – the economics of obesity in Scotland”, National Obesity Forum who in turn used the approach undertaken by the National Audit Office (2001), “Tackling Obesity in England; Report by the Comptroller and Auditor General”, House of Commons 2002.

APPENDIX 6

Contact details for the physical activity co-ordinators in each Health Board

Physical activity co-ordinators have been appointed in each of the four Health Board areas. They co-ordinate physical activity initiatives in their Board areas in accord with the Physical Activity Strategy Action Plan.

The co-ordinators' contact details are as follows:

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APPENDIX 7

Child and adolescent assessment, referral and treatment criteria

Guidance on the management of obese children

Who should be treated?

- Children defined objectively as obese (BMI >98th %; UK 1990 reference data)
- Only children where the child and family appear willing to make necessary lifestyle changes

What should the aims of treatment be?

- Resolve co-morbidity, if present
- Aim at behavioural changes not necessarily weight loss, i.e. healthier eating, more activity (greater than 30 minutes of moderate activity, i.e. brisk walking most days) and less inactivity (less than 2 hours TV viewing and computer game use per day)
- Involve family in monitoring eating and activity and in making the necessary changes

Who should be referred?

- Children likely to have serious co-morbidity (sleep apnoea)
- Children with possible pathological cause of obesity (severe obesity in <2 years of age, co-existing short stature)

Current proposed policy recommendations for childhood obesity

Childhood obesity is increasing in prevalence, and has serious health consequences in adult life. The following policy recommendations have been suggested ²⁷.

1. Increase public awareness about childhood obesity. The targeted messages suggested were:
 - Paediatric obesity is a *disease* that involves genetic predisposition, a toxic environment and behaviour

- Paediatric obesity puts children at serious health risks
 - More appropriate portion sizes, healthy food choices and moderate physical activity can prevent this disease
2. Shape passive decisions with legislation and community based rules:
 - Ban television advertisements for unhealthy foods targeted to young children
 - Mandate healthy school lunch programmes
 - Prohibit fast food vendors from advertising in schools
 - Require daily physical education and incentive programmes to encourage children to choose healthy foods
 3. Designate obesity as a disease:
 - Emphasise the development of obesity clinics
 4. Professional groups should incorporate obesity prevention and treatment into their curricula.
 5. Government groups should aggressively regulate fraudulent, misleading claims by food, drug and device manufacturers regarding weight control.
 6. Disseminate concrete guidelines for obesity treatment.
 7. Develop and fund a targeted research agenda for paediatric obesity.

APPENDIX 8

Baseline health assessment and risk factor management

Baseline Health Assessment

The minimum clinical baseline data set should include:

- 1) **Co-morbid conditions and risks** – the presence of ischaemic heart disease, cerebrovascular disease, diabetes mellitus, gallstones, infertility and menstrual disorders, arthritis, respiratory disease, sleep apnoea, endocrine disease.
- 2) **Current drug therapies** (both prescribed and ‘over-the-counter’).
- 3) **Smoking and alcohol history.**
- 4) **Body weight** – measured without shoes and wearing indoor clothes using accurate scales, which are regularly calibrated.
- 5) **Height** - without shoes.
- 6) **Waist circumference** - measured in the standing position, midway in the mid-axillary line between the lowest rim of the rib cage and the iliac crest – not at the maximum point or at the umbilicus.
- 7) **Neck circumference** (>43cm is a risk for obstructive sleep apnoea).
- 8) **Blood pressure and pulse rate.**
- 9) **Urinalysis** - if glycosuria is present this should be related to a measure of fasting blood glucose.
- 10) **Serum gamma glutamyl transferase activity.**
- 11) **Blood glucose** - random; or fasting if random glucose elevated or glycosuria. May require a glucose tolerance test.
- 12) **Total serum cholesterol and triglyceride** - fasting lipid profile (total cholesterol, triglyceride, HDL cholesterol, calculated LDL cholesterol, cholesterol/HDL ratio) where there is a personal or family history of coronary heart disease, Type 2 diabetes, hypertension or when total serum cholesterol is elevated in baseline assessment.

13) **Thyroid stimulating hormone.**

Medical assessment will include the medical history, family and social history.

Clinical evaluation should also include examination for evidence of cardiac valve disease, pulmonary hypertension, cor pulmonale, or congestive cardiac failure, especially prior to consideration of drug therapy. ECG and/or chest X-ray may be indicated. Hirsutism or severe acne may prompt investigation of polycystic ovary syndrome.

Dietary interview will include the assessment of weight history, current diet and physical activity, readiness to change and the barriers to change. Patients require individualised agreed realistic targets, ongoing review and support.

Risk factor management

- 1) **Smoking** - cessation should be a priority. Smoking cessation should be a higher priority than weight loss in smoking obese patients. An explicit weight maintenance system should be used when advising patients to stop smoking.
- 2) **Excessive alcohol** – reduction.
- 3) **Blood pressure** - dietary measures include reduction in salt and fat intake and excessive alcohol.
- 4) **Serum lipids** - hyperlipidaemic patients should receive dietary lipid lowering advice as well as weight management advice. Extensive meta-analyses show the impact of dietary change on hyperlipidaemia and on reducing the risk of coronary artery disease.

APPENDIX 9

Drug therapy for weight loss

Drugs currently available for the treatment of obesity act in one of two main ways, either by decreasing absorption of fat in the gastro-intestinal tract (Orlistat), or by suppressing appetite by acting on the central nervous system (Sibutramine). The Royal College of Physicians of London and SIGN have published guidelines for drug therapy ^{2,28}.

Thyroxine, diuretics and amphetamines are not treatments for obesity.

1. Selection of patient

- Failure of previous serious attempts to lose weight through diet, physical exercise and behavioural change over a supervised 3-month period
- In exceptional medical circumstances, it may be appropriate to shorten this trial period of modified diet and physical activity
- BMI >30kg/m²
- BMI >27kg/m² with co-morbidities e.g. IHD, Type 2 diabetes mellitus, hypertension, dyslipidaemia, sleep apnoea
- Age 18-75 yr. (neither drug licensed for children)

2. Selection of drug

- No good evidence currently exists for superior benefit of one type of drug over the other
- Combination therapy with anti-obesity agents is contraindicated due to the absence of safety or efficacy data
- Contra-indications for sibutramine include: concurrent administration of other SSRIs, uncontrolled hypertension, history of major eating disorder, coronary artery disease, drug or alcohol abuse
- Contra-indications for orlistat include: malabsorption syndromes, cholestasis

- Royal College of Physicians guidance suggests that:
 - Sibutramine may be more suitable for: frequent snackers, nocturnal eaters, patients with low HDL
 - Orlistat may be more suitable for: patients with impaired glucose tolerance or diabetes, patients with high total/LDL cholesterol, patients with high fat intake who can adhere to a low fat diet, patients who have repeatedly lost and regained weight

3. Monitoring

- Weight (monthly on accurate and regularly calibrated scales)
- Blood pressure (and pulse rate if on sibutramine: see licensing information for sibutramine below)
- Other co-morbid medical conditions e.g. HbA1c in diabetes, lipid profile if dyslipidaemia at baseline assessment
- Other medication, which may require adjustment with progressive weight loss
- Presence or absence of adverse effects

4. Duration of treatment

- 5% weight loss should be achieved at 3 months to continue treatment
- 10% weight loss should be achieved at 6 months to continue treatment
- Discontinue if weight regain after 6 months
- Discontinue sibutramine if pulse rises by >10 beats/min, or BP by 10mmHg systolic or diastolic, or 145/90mmHg
- Product licence for sibutramine states that 2kg weight loss should be achieved at 4 weeks for continuation of therapy
- Sibutramine is licensed for maximum 1 year of continuous treatment
- Orlistat is licensed for maximum 2 years of continuous treatment

ORLISTAT

Orlistat decreases absorption of triglycerides from ingested fats through the inhibition of pancreatic lipase, occurring in a dose-dependent manner.

Licensing information:

- Dose 120mg taken immediately before, during or up to 1 hour after each main meal, to a maximum of 360mg daily. Omit dose if meal missed or contains no fat
- Side effects include: liquid oily stools, faecal urgency and flatulence, all minimised by reduced fat intake

NICE guidance:

- Use only if at least 2.5kg weight lost by dietary control and increased physical activity in the month prior to first prescription
- Age 18-75 yrs
- Arrangements should exist for appropriate healthcare professionals to offer specific advice on diet, support and counselling on physical activity and behavioural strategies

SIBUTRAMINE

Sibutramine acts centrally to decrease appetite through the inhibition noradrenaline and serotonin re-uptake.

Licensing information:

- Dose: 10mg capsule, increasing if weight loss less than 2kg after 4 weeks to 15mg daily. Discontinue if weight loss less than 2kg after 4 weeks at higher dose. Monitor BP and pulse every 2 weeks for first 3 months, then monthly for 3 months and at least 3 monthly thereafter
- Side effects include: constipation, insomnia, dry mouth, tachycardia, palpitations, and hypertension

NICE guidance:

- Should be prescribed only for individuals who have made previous serious attempt to lose weight by diet, exercise and other behavioural modification
- BMI of >30, or BMI >27 with co-morbidities
- Age 18-65 yrs

Arrangements should exist for appropriate healthcare professionals to offer specific advice on diet, support and counselling on physical activity and behavioural strategies.

APPENDIX 10

Physical activity prescriptions for weight loss

This should be tailored to the individual and if more than an increase in usual activities is envisaged, there should be a medical consultation to determine that the subject can exercise safely. Since we recommend a general increase in physical activity a medical examination may not be necessary. In general, physical activity should result in energy expenditure of 1,500-2,000kcal per week. For most individuals this means 60 minutes of accumulated exercise daily, at moderate intensity (55-70% of maximum heart rate – for convenience a table giving predicted heart rates is shown below). This exercise can be brisk walking, static bicycling, cycling on the roads, moderate swimming, a treadmill, a gym stepper etc. A doctor, exercise physiologist, physiotherapist or other trained person can give guidance on a physical activity programme and people should be encouraged to start with light exercise and work up, as well as keep a record of what they did and how they felt. It is a mistake to set too high a target.

If ‘exercise’ is being prescribed, it is worth following a simple warm up procedure of stretching. Since an increase in lifestyle physical activity is suitable for most patients, from an individual safety and adherence perspective and from a public health promotion perspective, warm ups may not be necessary. It is important to work with the patient to develop a realistic plan that suits their lifestyle.

Heart rate

Table 15. Table to give predicted maximum heart rates and percentages

Age	Predicted heart rates			
	100%	70%	55%	50%
20	200	140	110	100
30	190	133	105	95
40	180	126	99	90
50	170	119	94	85
60	160	112	88	80
70	150	105	83	75
80	140	98	77	70

For people who are morbidly obese, these levels of activity are too great. Sometimes moderate intensity exercise is used and estimated as the intensity which has the subject breathing harder but still able to maintain a conversation. This may in some cases be an easier workload to achieve.

Physical activity prescriptions for weight maintenance

Thirty minutes of moderate intensity physical activity on most days of the week is required (50% of maximum heart rate). The forms of physical activity given above are excellent and to this list can be added dancing.

APPENDIX 11

Risk stratification criteria and exercise prescription for cardiac patients

Low risk

Uncomplicated myocardial infarction (MI), CABG, angioplasty or atherectomy.
Functional capacity equal or greater than 6 METs.

No resting or exercise induced myocardial ischaemia manifested as angina and or ST segment displacement.

No resting or exercise-induced complex arrhythmias.

No significant left ventricular dysfunction (EF [ejection fraction] greater than 50%).

Moderate risk.

Functional capacity less than 5-6 METs 3 or more weeks after the clinical event.

Mild to moderately depressed left ventricular function (EF 31-49%).

Failure to comply with exercise prescription.

Exercise induced ST segment depression of 1-2mm or reversible ischaemic defects (echocardiography or nuclear radiography).

High risk.

Severely depressed LV function (EF less than 30%).

Complex ventricular arrhythmias at rest or appearing or increasing with exercise.

Decrease in systolic blood pressure of >15mmHg during exercise or failure to rise consistent with exercise workloads.

MI complicated by CCF, cardiogenic shock and or complex ventricular arrhythmias.

Patients with severe CAD and marked (>2mm) exercise induced ST segment depression.

Survivor of cardiac arrest.

Table for walking guidelines for cardiac patients

Week	RPE* (modified Borg scale)	Duration (mins)	Distance (meters)	Frequency (per day)
1	2-3	5	200	1-2
2	2-3	10	400-500	2
3	2-3	15	500-700	2
4	3	20	750-1250	1-2
5	3	25-30	1250-1750	1-2
6	3	30-40	1750-3000	1-2

*RPE is Rating of Perceived Exertion Scale. The modified Borg scale is the patient’s perception of how heavy and strenuous the exercise feels. This perception depends on strain, fatigue, breathlessness etc. The scale runs 0-10 where 0 is nothing, 2 is weak or light, 3 is moderate perceived exertion (patient feels fine).

After week six, an average of 1.5 to 2 miles per day at a pace which represents an RPE of 3. Patients should walk at a pace that feels comfortable and start and finish at a slower pace. Note how they feel each day and if tired after the walk can reduce the time or distance for the following day. Stop if there is any chest pain and if pain occurs regularly or increases contact their doctor. Wait 30-40 minutes after a meal before starting their walk. Avoid extremes of temperature - hot, cold or windy.

APPENDIX 12

Outcome indicators and factors in an effective obesity service

Outcome indicators

- 1) Children – a restriction of childhood BMIs.
- 2) Risk reduction - in management emphasis may be placed on reducing risks e.g.
 - a) Reducing blood pressure to <140/80mm/Hg.
 - b) Reducing total serum cholesterol to <5mmol/l.
 - c) Limiting elevated venous glucose to <5.5mmol/l fasting and <7.8mmol/l two hours after an oral glucose tolerance test (WHO criteria for normality).
- 3) Weight loss programmes for adults.
 - a) Successful – weight loss >5kg with the amelioration of risk factors.
 - b) Very successful – weight loss >10kg.
 - c) Exceptional – weight loss >20kg.
- 4) Weight maintenance for adults.
 - a) Weight regain <3kg long term (i.e. >2 years).
 - b) Sustained waist reduction of 4cm.

Features of an effective obesity service

- 1) Emphasis on changing eating and physical activity behaviours.
- 2) Agree or set lifestyle goals with patients.
- 3) Frequent contact and ongoing contact.

- 4) Accessible protocol driven services.
- 5) Multiprofessional teams with staff trained appropriately.
- 6) Staff trained in understanding cognitive concepts such as motivation and depression.
- 7) Multifactorial inputs are most effective, compared with one isolated programme.

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