

**Tackling Obesity in Adults in County
Durham and Darlington:**

A Strategy for Prevention and Management

June 2005

Draft for LSP Consultation

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Executive Summary

The prevalence of obesity is increasing rapidly and it is now viewed in almost epidemic terms. Over half the UK population is overweight or obese and the problem is increasing. Obesity is directly related to coronary heart disease, cancer, diabetes, osteoarthritis and respiratory illnesses.

Obesity is recognised as a national priority. The need for action has been embedded in the National Service Frameworks for coronary heart disease,¹ diabetes,² cancer³ and children.⁴ In addition, the recent Public Health White Paper, *Choosing Health: Making Healthy Choices Easier*⁵ has acknowledged the importance of obesity and outlined the ways in which the government intends to tackle the problem.

Obesity results from the interaction of many factors including understanding of and access to a healthy balanced diet and opportunities to be physically active. Tackling obesity requires action both at government level and across local agencies.

Prevention is the ultimate aim of this strategy for County Durham and Darlington. There are many factors contributing to people developing obesity but ultimately people need to expend an equal number of calories to those consumed, or weight will increase. Promoting physical activity and supporting people to adopt a healthy diet are both important. In addition, prevention also requires promoting self-esteem and reducing depression to ensure that people are able to help themselves.

The management of obesity is complex and requires multi-agency involvement. The most effective weight loss strategies will vary from person to person but success requires an individual decision to adopt a healthier lifestyle. A menu of approaches is required, including group work, one-to-one sessions and specialist services.

Finally, rates of obesity across the population should be monitored and evidence sought regarding the effectiveness of management programmes in County Durham and Darlington.

Purpose of this document

This strategy highlights the problem of obesity in the adult population of County Durham and Darlington and what needs to be done locally to prevent and treat the problem. It has been produced by a multi-agency task group and is based on the best current available evidence. It complements the strategy for tackling obesity in children and young people which was published in September 2004.

Local Strategic Partnerships are asked to;

- Endorse this strategy
- Identify a named group and individual lead to take the strategy forward
- Complete, develop and agree detailed local action plans (Appendix 4) for implementation in 2005/2006 onwards.

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1. **Why tackling obesity in adults is a priority**

- Over half the UK population is overweight or obese
- Obesity in adult women nearly trebled (8 to 23%) in 22 years (1980-2002)
- Obesity in adult men nearly quadrupled (6 to 22%) in 22 years (1980-2002)

Obesity has been highlighted as a major national problem in a series of recent reports:

- In *Storing up problems; the medical case for a slimmer nation*⁶ the medical colleges summarised the extent of the problem and the evidence for prevention.
- A report from the National Audit Office highlighted the cost of the problem to individuals, the economy and the NHS.⁷
- The report on obesity from the House of Commons Health Committee in May 2004 highlighted the need for joined up solutions requiring cultural and societal changes.⁸
- The recent White Paper *Choosing Health: making healthy choices easier* acknowledged the importance of tackling obesity to improve the health of the population.⁵
- Evidence for the prevention and treatment of obesity has been published by the NHS Centre for Reviews and Dissemination,⁹ the Cochrane Collaboration,¹⁰ the Health Development Agency¹¹ and the Scottish Intercollegiate Guidelines Network.¹²

1.1. **Measuring obesity**

Obesity occurs when a person puts on weight to the point that it seriously endangers health. It is a chronic, progressive, relapsing disease, the prevalence of which is increasing exponentially and has reached epidemic proportions.¹³

Obesity is most commonly defined by clinicians in terms of the **body mass index (BMI)**. This is a measure of how appropriate a person's weight is for their height. BMI is calculated as follows:

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

A desirable BMI is considered to be between 18.5 and 24.9 kg/m². A BMI equal to 25 and above is defined as 'overweight' and one above 30 as 'obese'. Figure 1 shows how the BMI classification varies according to the height and weight of individuals.

It is not just the amount of fat in the body that is a health hazard, but also its pattern of distribution. Abdominal or visceral fat is linked to cardiovascular mortality, hypertension and non-insulin dependant diabetes. For this reason the **waist circumference** is also used to assess the risk of obesity upon health. Table 1 shows the risk of disease according to both BMI and waist size.

Figure 1: Body Mass Index (BMI) Chart

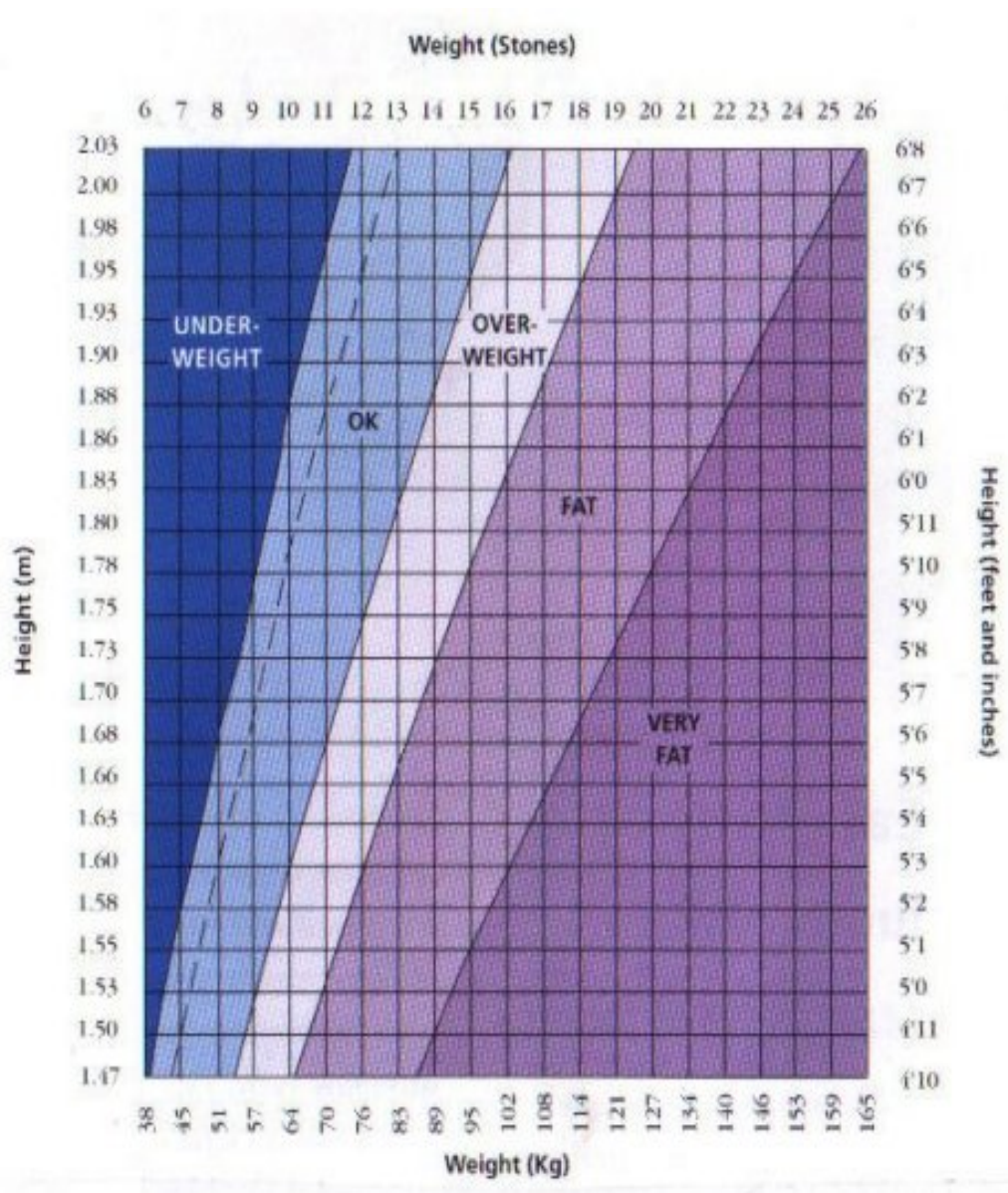


Table 1: The risk of disease according to BMI and waist size

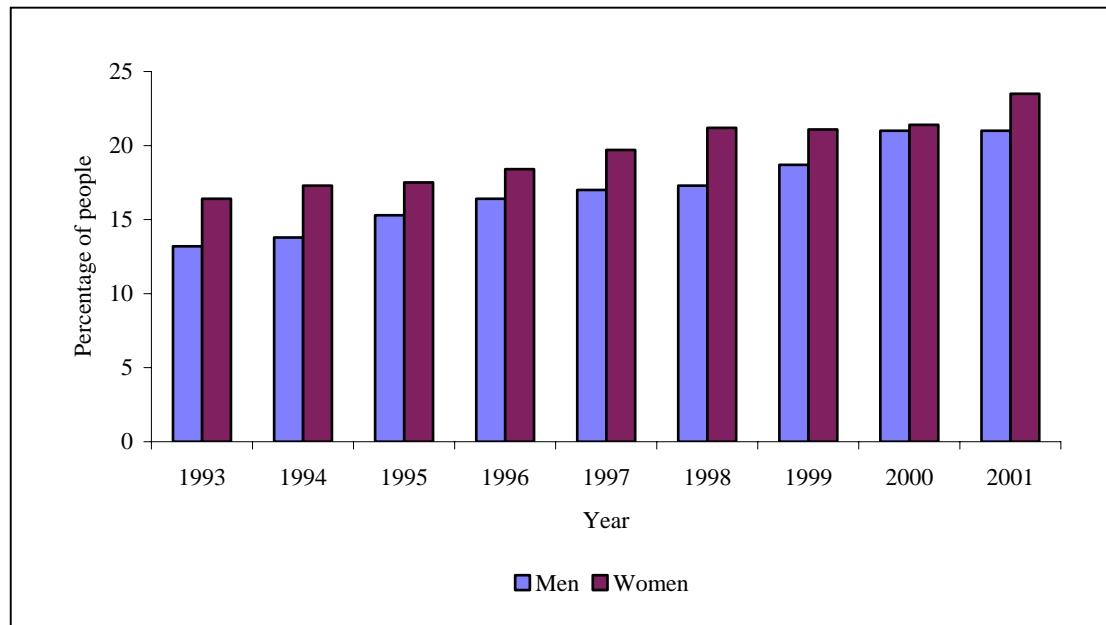
BMI	Status	Waist less than or equal to 40 inches in men or 35 inches in women	Waist greater than 40 inches in men or 35 inches in women
<18.5	Underweight	-	-
18.5 to 24.9	Normal	-	-
25.0 to 29.9	Overweight	Increased	High
30.0 to 34.9	Obese	High	Very high
35.0 to 39.9	Obese	Very high	Very high
40 or greater	Morbidly Obese	Extremely high	Extremely high

1.2. Prevalence of obesity

The prevalence of obesity is rapidly increasing across world.¹³ Figure 2 demonstrates that, in England, the number of obese people has trebled over the past 20 years. The *Health Survey for England 2002* indicated that 21% of men and 23%

of women were obese and 66% of men and 55% of women in England were overweight or obese.¹⁴ Predicted trends suggests that, unchecked, prevalence will increase with 26% of men and 28% of women being clinically obese by 2010.

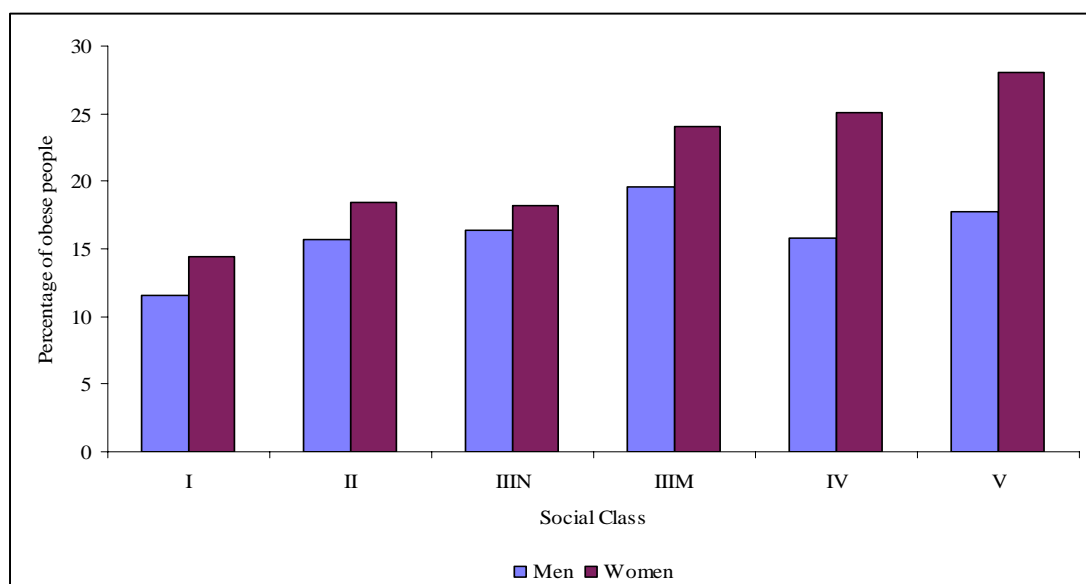
Figure 2: The increasing prevalence of obesity in England (percentage of adult population).



Different sectors of the population are at different risks of becoming overweight or obese.¹⁵ Those groups and individuals considered to be at high risk include:

- children from families where either or both parents are obese¹⁶
- people from lower social classes¹⁷ (figure 3))
- people who stop smoking¹⁸
- older people³
- individuals of Asian descent.¹⁹

Figure 3: Percentage of obese people according to gender and social class in England in 1998.



1.3. Impact of obesity

Obesity has a substantial human cost. A BMI greater than 30kg/m² is associated with an increase in all cause mortality. In addition it is a primary underlying factor in numerous diseases including:

- Metabolic and endocrine disease in particular non-insulin dependent (Type 2) diabetes
- Cardiovascular disease and stroke
- Mobility restricting disorders such as osteoarthritis of the hips and knees and chronic back pain
- Some cancers (for example, colorectal, breast, ovary, uterus and prostate cancer)
- Psychological distress and illness (for example, poor self esteem and depression).

These illnesses are estimated to cause 30,000 deaths a year and obese people are likely to have their life expectancy shortened by an average of nine years.⁹ Obesity, therefore, has serious financial consequences for both the NHS and the wider economy. Although there are inherent difficulties in quantifying the link between obesity and associated disease the National Audit Office⁷ estimated that it cost at least £0.5billion a year in treatment costs to the NHS and possibly in excess of £2billion to the wider economy.

Only a small part of the NHS expenditure is actually on treatment for obesity itself. The vast majority of costs tend to be indirect and relate to the management of the associated conditions it induces. This is reflected in recent government policy with the national service frameworks for diabetes and coronary heart disease, the national cancer plan and the recent White Paper, *Choosing Health: Making Healthy Choices Easier* all recognising the problem of obesity and setting targets to tackle it. Significant clinical benefits arise if an obese patient loses 5 to 10% of body weight (Table 2). Effective treatment and management of obesity is extremely cost effective.

Table 2: The health benefits of 10% weight loss¹⁴

Health benefits of 10% weight loss	
Mortality	>20% fall in total mortality >30% fall in diabetes related deaths >40% fall in obesity related cancer deaths
Blood pressure	Fall of 10mmHg systolic Fall of 20mmHg diastolic
Diabetes	Reduces risk of developing diabetes by >50% Fall of 30-50% in fasting glucose Fall of 15% in HbA1c
Angina	Reduces symptoms by as much as 90% 33% increase in exercise tolerance
Lipids	Fall by 10% in total cholesterol Fall by 15% in LDL cholesterol Fall by 30% in triglycerides Increase by 8% in HDL cholesterol

1.4. Causes of obesity

Although there may be a small genetic component to obesity, the sharp upturn in the number of obese people is due to a combination of increased calorific intake alongside decreased energy expenditure. Obesity can only occur if there is an alteration in an individual's energy balance with more calories being consumed than expended. Decreasing calorific intake and/or increasing physical activity is the only way to redress the balance.

Changes in eating behaviour over recent years have certainly affected the prevalence of obesity. Evidence suggests that the percentage of fat in the diet has increased with time and this predisposes people to weight gain.²⁰ In addition, there is a general lack of understanding of what constitutes a balanced diet, with a tendency towards high fat intake and low consumption of fresh fruit and vegetables. Healthier food tends to be more expensive and less freely available than more unhealthy options and this may prevent some people from adopting a balanced diet. At the same time there has been a reduction in energy expenditure due to a marked increase in sedentary habits of the population.

These changes in eating and activity behaviour relate to the so called 'obesogenic' environment which comprises social causes (too many sedentary pursuits available; fear that the outdoors in cities is dangerous, leading to less cycling and walking; the car) and the results of our consumer lifestyle (eating pre-prepared meals that contain excessive sugar and fats). Tackling this obesogenic environment is key to halting the obesity epidemic as changes in the population's diet and level of physical activity are seen as the most likely way to reduce the prevalence of the obesity. This is reflected in many of the recent documents.^{5,7,13 & 21}

2. Prevention

- **Prevention of obesity requires both the promotion of healthy eating and physical activity and enabling people to adopt them**
- **Tackling the obesogenic environment requires action at government and local levels**

Obesity is not an easy problem to tackle. Much of the solution lies in preventing people from becoming overweight and then obese, as much as helping those who already have a problem. There are three main components to prevention:

- *Encouraging people to understand what constitutes a healthy balanced diet and enabling people to adopt one.* Education programmes are required to ensure what comprises a healthy diet is understood by all. However, enabling people to adopt such a diet is difficult. Highly processed and calorie dense foods tend to be cheaper than the healthy alternatives and price alone can deter some people from adopting healthy eating. In addition, the level of choice of healthier options can be far more limited in certain areas. Equalising access is, therefore, a prime concern.
- *Promoting physical exercise* to ensure the calories expended are greater than or equal to the calories consumed. Again, knowledge about exercise should be promoted and access for all encouraged.

- *Promoting self-esteem and self-confidence.* The White Paper recognised that people need to feel empowered to adopt a healthy lifestyle. Individuals need to feel supported and environments should be fostered in which it is easier to make healthy choices.

Very few rigorous studies of obesity prevention in adults exist and so making definitive recommendations about how best to tackle the problem is difficult. One systematic review of the evidence in this area was conducted by the NHS Centre for Reviews and Dissemination and published as an Effective Health Care Bulletin.⁹

There is a much larger body of evidence surrounding the effectiveness of community projects that promote healthy diets. In general, all the reviews of this literature have concluded that providing information on healthy eating alone is not enough. This needs to be accompanied by other strategies such as social support, goal setting, small group work, food related activities (such as after school food clubs and cookery lessons) and the incorporation of family components.^{5,9,11}

3. Management

Active management should only be considered where:

- **An individual is obese or is overweight with associated co-morbidities**
- **The individual is ready to change behaviour.**

Management should consist of ensuring a healthy diet, increasing physical activity and making life changes rather than 'quick fix' solutions.

The evidence base on the management of obesity is broader but, again, due to the nature of the subject area and the consequent difficulties of conducting the gold standard randomised controlled trials, the literature only provides a weak evidence base on which to support any recommendations. Various methods are used to help treat obesity. The evidence surrounding each of the broad strategies is summarised below.

3.1. Behavioural, physical and dietary interventions

Pirozzo et al¹⁰ and Avenall et al²² have systematically assessed the effects of low fat and low calorie diets on the treatment of obesity finding that low fat and low calorie diets were reasonably effective in helping people lose weight. However, low fat diets in combination with planned programmes of exercise or behavioural interventions were more effective than diets alone.

In *Management of overweight and obesity*¹¹, the Health Development Agency stated that increased physical activity is effective in producing a modest total weight loss, however, diet alone was more effective than exercise alone. There is evidence that a combination of behavioural therapy techniques in conjunction with other weight loss approaches is effective for the treatment of adult obesity over a one-year period.

3.2. Pharmacological Interventions

There is evidence to suggest that the use of weight reduction drugs is associated with weight loss.^{23,24} A number of drugs are prescribed for such purposes. These include:

- Orlistat (inhibits all gastrointestinal lipases and so the ability to absorb dietary fat)
- Sibutramine (re-uptake inhibitor of a number of neurotransmitters that leads to feeling of fullness)
- Acarbose (inhibits the digestion of starch)
- Metformin (decreases the release of glucose into circulation and its uptake into tissues).

Avenell et al²² showed that Orlistat offered a reduction of approximately 3.26kg (95%CI; 4.15 to 2.37kg) after two years and sibutramine a weight loss of 3.4kg (95% CI; 4.45 to 2.35kg) after 18 months. Metformin was associated with reduced mortality and myocardial infarction-related mortality. There was insufficient evidence surrounding the use of acarbose to determine its effectiveness.

3.3. Surgical interventions

Surgical treatment is normally only considered in people with morbid obesity (BMI greater than 40) and in those where other, less invasive, methods have failed. There are two main types of procedure which are carried out – malabsorptive and restrictive. Malabsorptive surgery aims to reduce the body's capacity to absorb nutrients by bypassing parts of the gastro-intestinal system. There are a number of procedures in this category including jejunioileal bypass, gastric bypass and biliopancreatic diversion. Restrictive procedures include operations which reduce the size of the stomach e.g., gastropasty or gastric banding. It is associated with a risk of premature death and is currently rarely used in England.

In general the weight loss associated with surgical interventions is greater and more sustained than that achieved by non-surgical methods.²⁵ Surgery, however, is associated with medium to long term complications such as vitamin and mineral deficiency, feeling of fullness, dizziness, and nausea. There is also specific surgical mortality and direct complications of surgery such as infection, with an overall reported surgical mortality rate of 1-2%.

The balance in favour of surgery for people with morbid obesity may shift. A recent report for the US Agency for Healthcare Research and Quality²⁶ has emphasised the sustained weight loss and reduction in some co morbidities following surgery. In addition, newer laparoscopic methods of surgery are likely to have lower complication rates and this will alter the risk/benefit balance.

3.4. Patient preferences

A survey undertaken by South Durham Health Care Trust between January and September 1999 sought to explore the views of the users of its dietetic service in weight management. The results were based on the 127 responses, including those who attended follow-up and those who did not.

The results suggested there was a clear need for dietetic training, guidelines and standards for staff as well as a good quality literature for patients. The survey also

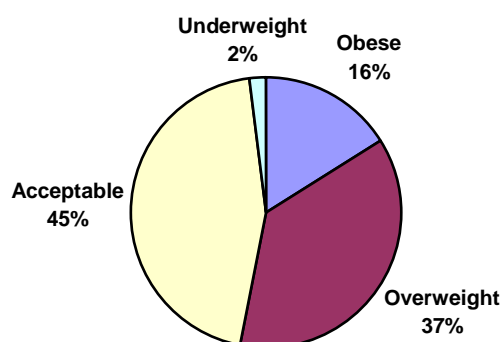
indicated that patients felt that other approaches to weight management could be valuable, such as maximising patients' access to Practice Nurses, Leisure Services and commercial slimming groups.

4. What does this mean for County Durham and Darlington

The recent national *Health Survey for England: Health & lifestyle indicators for Strategic Health Authorities 1994-2002*,²⁷ published in December 2004 demonstrated that in County Durham and Tees Valley, obesity had risen from 16.5% of those surveyed in 1994-96 to **27.3% in 2000-2002**, the highest level in England. Much of the excess was due to a rapid increase in obesity in men.

The North East Public Health Observatory (NEPHO) health and lifestyle survey²⁸ assessed the prevalence of self reported obesity in the population of County Durham and Darlington in 2002. 16% of the respondents who gave their height and weight in the survey had BMIs that were classed as obese, 37% were overweight, 45% were normal and 2% were underweight. 8% of those who were classed as obese had BMIs greater than 40 (morbidly obese).

Figure 4: Prevalence of Obesity in County Durham & Darlington



These levels are lower than national estimates as those who returned the questionnaire were not fully representative of the population, with over representation of older women and higher social classes. In addition, people are known to underestimate their weight on self-reported forms.

Rates of obesity were also examined by PCT. Table 3 shows the percentage of people classified as obese for each PCT according to the NEPHO survey.

Table 3: Prevalence of adult obesity by PCT

PCT	Percentage of People	Crude estimate of numbers of obese people
Durham Dales	17.4%	10,799
Darlington	14.1%	9,881
Derwentside	15.1%	9,344
Durham & Chester-le-Street	13.8%	14,843
Easington	19.0%	12,868
Sedgefield	15.5%	9,813

5. What is already being done in County Durham and Darlington: prevention

Prevention is the ultimate aim of any obesity strategy. The population level key messages that need to be conveyed include:

- Eat a healthy diet
- Be more physically active
- Avoid diets and unproven weight loss products which promise rapid weight loss
- Awareness of BMI and waist circumference
- Awareness of sources of reputable advice about weight management.

Numerous initiatives that aim to promote physical activity or promote healthy eating exist within County Durham and Darlington. However, few are specifically designed to primarily prevent obesity. Examples of the programmes are detailed below.

5.1. Regional and County-wide obesity prevention initiatives

The promotion of healthier food choices across a range of settings and that leads to the adoption of a balanced diet by the general population is the philosophy central to the region's new Strategy for Sustainable Farming and Food.²⁹ This document incorporates recommendations to increase awareness of what constitutes a healthy diet but also aims to make this healthier food more affordable, accessible and attractive to people.

Promoting physical activity is the subject of a strategy produced in County Durham in partnership with local leisure service providers and voluntary organisations³⁰ and of a regional plan for sport and physical activity.³¹ Both these documents seek to encourage and enable all people to engage in physical activity, but particularly those with a poor perception of body image, who previously may have been put off participating. Interventions they suggest include walking programmes, women only sessions and gentle exercise programmes becoming more strenuous over time.

The County is served by a library service that is based both at static points and with vehicles that travel to isolated communities. This service offers free Internet access for raising information and awareness about healthy eating and physical activity as well as providing further resources and training.

5.2. Obesity prevention initiatives in the Darlington area

- Hands on health cookery courses provide the opportunity for people to gain/enhance skills in preparing healthy recipes on a budget whilst learning about food hygiene issues.
- Darlington food co-operative services provide weekly access to affordable fresh fruit and vegetables into three community partnership areas, which include the two Sure Start Local Programmes.
- Exercise and healthy living groups are delivered to communities, which include ethnic minorities and people with poor mental health.
- The Active England Zone Active Project is to deliver physical activity into three targeted zones in Darlington, working with the community to determine their requirements.
- The Countryside Agency and the PCT have funded the Darlington Doorstep Walks project to encourage people to be more active through

low intensity, affordable physical activity in the form of led walks or individually using independent walking packs.

- Exercise on Referral is delivered within leisure services and provides the opportunity for people to increase their activity levels with additional support from trained staff.
- A healthy café and weekly group physical activity sessions are available in Darlington's healthy living centre in the Eastbourne community partnership area.

5.3. Obesity prevention initiatives in the Durham & Chester-le-Street area

- A New Opportunity Fund¹ (NOF) funded five-a-day programme promoting the consumption of more fruit and vegetables by all in the Pelton area.
- The Heartbeat Award which encourages caterers to excell in their standards of staff training and hygiene whilst also recognising those who promote good health.
- Working for Health in County Durham Award Scheme – incorporates both healthy eating and physical activity as targets for employers
- Healthy Horizons project – joint initiative between the Durham & Chester-le-Street Lifestyle Initiative and Age Concern to increase participation in physical activity in older people (aged 50+), especially those living in disadvantaged communities with restricted access to traditional service provision. The project introduces creative solutions to engage older people in physical activity and address the perceived barriers to participation.
- The Lifestyle Initiative, which is a collaboration between the PCT, Durham City Council and Chester-le-Street District Council. The project incorporates the exercise referral scheme alongside additional physical activity initiatives.
- The Countryside Agency funded Footsteps for Fitness programme. This promotes guided walks around the local area whilst also providing independent walk packs.
- The Coronary Heart Disease Team offer community based Phase 3 Rehabilitation programmes to patients that involve two sessions with a dietitian.

5.4. Obesity prevention initiatives in the Durham Dales area

- A part time dietitian works in the district as part of the healthy living centre programme.
- A food project co-ordinator works alongside the Durham Dales breakfast club.
- *Hands on Health* programme as part of the Health Living Centre.
- Walking clubs, community exercise classes in leisure and community centres, family fun days and organised sports (for example. 10km runs, triathlons, soccer tournaments, children's cross country, basket ball, American sports, cheer leading and measured walking events).
- Wellness Bus – a mobile gym which introduces people to physical exercise.
- LEAP project (Local Exercise Action Pilot) - work with young people to increase their levels of physical activity.

¹ Now the Big Lottery Fund

5.5. Obesity prevention initiatives in the Derwentside area

- The NOF five-a-day programme aimed at promoting the consumption of more fruit and vegetables across the whole population.
- The NOF funded *Hands on Health* programme. This initiative offers practical cook and eat sessions alongside other activities and intends to promote healthy eating for those under 25 years of age.
- The Heartbeat Award (run jointly with Dietetics and Environmental Health) has been applied for by the Healthy Living Centre at the Store in Dipton which has a healthy eating community café.
- Working for Health in County Durham project
- Derwentside Doorstep Walks – which is a Countryside Agency Funded initiative and is jointly run by the PCT and the Groundwork Trust.
- Healthier Futures campaign that promotes good nutrition and physical activity in the under 25 age group.
- The Coronary Heart Disease team provide Heart Manual Training. Weight management is included as a topic as part of this programme. Similarly in the Phase 3 Cardiac Rehabilitation programme information about both physical activity and nutrition are provided.
- A pilot food cooperative scheme in the Stanley Green corridor.

5.6. Obesity prevention initiatives in the Easington area

- The five-a-day project, known as *Strive for Five*, that is funded by NOF. The PCT has recently provided additional funding to enable this programme to roll-out district wide.
- A food and health specialist works with partner organisations and local people to improve access to healthy food.
- A team of Physical Activity Specialists work across the district with a wide range of partners to promote and increase access to physical activity.
- The district-wide Healthy Living Centre Programme – Health for All, has two of its four themes contributing to the prevention of obesity. *Eat Well, Grow Well* focuses on increasing access to fruit and vegetables in the community. New allotments have been developed and food cooperatives established to increase access. Healthy eating courses are also delivered in local communities. *Get Active* is the physical activity element of the programme. This provides a wide range of opportunities to local people including sports equipment hire, cycle loans, activity sessions, cycle and walks programmes.
- Healthy Communities Collaborative – one of only three areas in the country to pilot this community development approach to improving access to healthy eating.

5.7. Obesity prevention initiatives in the Sedgfield area

- The promotion of the Healthy Workplace Awards. These include the promotion of healthy eating and physical activity at work. The programme has been adopted enthusiastically by the PCT and as part of the Improving Working Lives proposal the PCT will seek to attain the Award.
- Community food projects.
- The Local Strategic Partnership and the Professional Executive Committee of the PCT have established strategy groups for physical activity, food and health, and tobacco control.
- A physical activity framework has been endorsed by the Local Strategic Partnership subgroups for health and environment and culture.

- Healthy Living Centre schemes exist which engage community members in physical activity and healthy eating.
- The oral health strategy promotes healthy eating.

6. What is already being done in County Durham and Darlington: treatment

6.1. Primary care

Currently, the majority of obese patients in County Durham are treated in primary care. However, there is no uniform pathway of care for these individuals. Some practices and health centres run slimming groups and others practices have accessed funding to refer to commercial companies such as Weight Watchers. Many offer one to one advice from GPs or practice nurses but with no supported weight management programmes In other areas the problem is being tackled within the SureStart programmes.

In addition, all six PCTs in County Durham and Darlington currently operate an *exercise on prescription/referral* programme. This enables GPs to prescribe exercise to patients as part of their overall recommendations for health. Most programmes also accept referrals from other healthcare staff. Patients are offered at least six sessions at a local leisure centre with the supervision of trained instructors who design individual exercise programmes dependent on each patient's physical and medical conditions.

The South Durham and Darlington Dietetic Department deliver a three-day training course which aims to equip practitioners (such as practice and community nurses, health visitors and fitness instructors) with the required resources and skills to set up and lead obesity management groups. In addition, the dietetic department holds quarterly support meetings for the trained practitioners.

6.2. Treatment services in the Darlington area

- Weight management groups are available at some practices in Darlington with the majority of practices providing individual lifestyle advice.
- Exercise on Referral is delivered within leisure services and provides the opportunity for people to increase their activity levels with additional support from trained staff.

6.3. Treatment services in the Durham & Chester-le-Street area

- As in the majority of other areas few services exist for the sole management of obesity although obesity is challenged in chronic disease management clinics.
- Some local practices provide one to one and group sessions for the management of obesity.
- An exercise referral programme is incorporated into the Lifestyle Initiative project. Referral criteria have recently been changed to prioritise referrals for obesity.

6.4. Treatment services in the Durham Dales area

- Exercise on referral programme that includes a 12-week supervised and individualised programme of physical activity. Graduates go onto an

organised graduate club and are eligible for reduced admission to leisure clubs.

- Physically Active Life for Seniors (PALS) involving chair exercise classes, Tai Chi classes, supervised walking session and exercise to music.

6.5. Treatment services in the Derwentside area

- Much of the management of overweight and obese individuals without co-morbid conditions takes place in primary care in designated clinics or one to one sessions.
- Exercise on referral programme.
- Drug therapy (Orlistat and Sibutramine) is prescribed by many practices across the district.

6.6. Treatment services in the Easington area

- Blackhall Surgery offers a 'Fresh Start' healthy eating programme that helps treat the problem of overweight and obesity
- The Hartlepool specialist nutritionist provides a weekly weight management clinic out of Peterlee Community Hospital for patients who have, or are at risk of, Type II diabetes.
- The adult mental health service for the district runs a weight management group
- Dietitians provide clinics in general practice for patients with coronary heart disease and diabetes.
- Health visitors in some areas provide weight management courses.

6.7. Treatment services in the Sedgefield area

- To date 33 practitioners have undertaken the course offered by the South Durham and Darlington Dietetic Department and, in principle, the Professional Executive Committee of the Primary Care Trust has approved the establishment of community based weight loss groups staffed by these trained individuals.
- Two GP practices in the PCT provide weight management groups as does Newton Aycliffe Leisure Centre. Practice nurses and health visitors also frequently offer one to one support.
- The Passport to Health project is piloting a weight management programme/healthy lifestyles course. This includes healthy cooking, benefits of exercise, foot health, first aid and personal safety. Likewise the Healthy Living Centre programme includes physical activity and healthy activity information and road shows providing lifestyle advice.

6.8. Specialist Nutrition & Dietetic Services

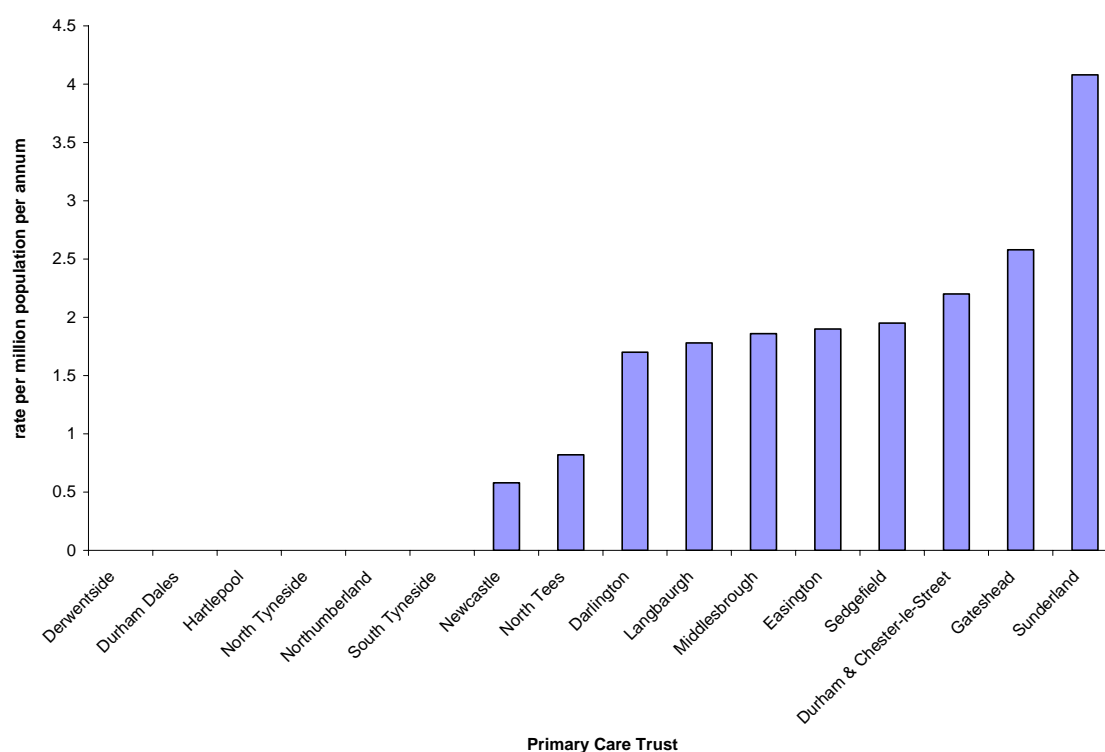
Some primary care teams refer obese and overweight patients for more specialist help. Again, however, referral patterns and habits vary.

The specialist dietetic services provided by County Durham and Darlington Acute Hospitals NHS Trust are grossly over subscribed with referrals. They also have a particular problem with patients failing to attend appointments, which makes the service inefficient. Health professionals suspect this lack of attendance is frequently due to a patient's refusal to acknowledge his/her weight is a problem and so have little motivation to tackle it. Referral systems could, therefore, be improved if only those patients with a desire to confront their weight problems are referred for specialist help.

6.9. Specialist Surgical Services

The North East Public Health Observatory (NEPHO) has recently published an occasional paper examining the use of surgery to aid weight reduction in the North-East and Yorkshire and Humber regions.³² The availability and uptake of surgery for morbid obesity across the regions was extremely variable. The overall utilisation of the procedures examined was 5.6 per million per annum but ranged by Primary Care Trust from zero (in the case of eight PCTs) to 24.0 operations per million per year across the two regions. The average annual rates of access to this surgery differed six fold between the two regions (1.4 to 7.8 operations per million in the North East and Yorkshire and Humber respectively). Figure 5 shows the rates of access to this surgery for the PCTs in the North East only. This demonstrates that the PCTs covering the County Durham and Darlington area have wide variations in their residents' access to surgery. For example, between 1997 and 2002 the average number of patients accessing such treatment was zero in both Derwentside and Durham Dales PCTs but over two per million in Durham and Chester-le-Street.

Figure 5: Average annual rates of surgery for obesity per million population for the North East region 1996/1997-2001/2002



The mean age of patients was 39.9 years. The majority of the study population were women (84.1%) and the male to female ratio differed significantly when compared to the prevalence of obesity by sex. There was also evidence to indicate an association between admission for this surgery and poverty. A higher proportion of patients residing in more deprived areas (according to the index of multiple deprivation) were found to be undergoing surgery than those residing in more affluent areas. This may reflect prevalence of obesity or utilisation of the private sector by affluent people.

Partitioning of the stomach was the most frequently performed operation for the management of obesity as opposed to gastroenterostomy, which was only carried

out on 11 occasions. The average estimated costs for each procedure and its associated care is £4,500 to £5,300.

NICE guidance²⁵ recommended a set of standards for hospitals providing surgery for morbid obesity including that care should be centred around multidisciplinary teams. In practice this means that this type of surgery should be concentrated in a small number of specialist centres. In this NEPHO study 13 provider trusts were identified across the two regions. In County Durham and Darlington people are known to be referred to Bishop Auckland General Hospital, Hartlepool and Sunderland for such treatment.

7. What needs to be done: prevention

Many factors impact on the prevalence of obesity. Action must be taken at both a local and national level.

7.1. Implementation of the strategy for tackling obesity in children and young people.

Obese and overweight children are likely to become obese or overweight adults. Tackling established behaviour is difficult and preventing the problem arising is likely to be easier than overcoming an established weight problem. Preventing obesity in children is crucial, therefore, to halting the obesity epidemic. Endorsing and implementing the recommendations of the recently published County Durham and Darlington strategy for tackling obesity in children and young people³³ is a priority.

7.2. Promotion of healthy eating

- Implement the recommendations of the strategy for sustainable farming and food³¹ and the forthcoming food action plan and the Food Standards Agency strategic plan.³⁴
- Ensure healthy food available and promoted in leisure centres.
- Ensure healthy food available in promoted hospitals.
- Ensure healthy food available in the work place.
- Ensure healthy food available in accessible shops.

7.3. Promotion of physical activity

The County Durham and Darlington Physical Activity Strategy³⁰ and the Regional Plan for Sport and Physical Activity³¹ recommended actions across the following areas:

- Recognise that increasing sport and physical activity is an extremely effective way of improving the health of the region's residents.
- Encourage people to be physically active at an early age. Physical education classes and sports clubs at schools should be promoted as should the Healthy Schools Programme.
- Physical activity should be incorporated into everyday life. Workplace activity, walking programmes, cycle routes and other programmes should all be promoted.
- It should be acknowledged that all people benefit from exercise but different elements of the community require different services. For example,

prescription for exercise referral schemes, rehabilitation, women only exercise sessions, and services for the elderly, people with disabilities or their carers and those living in geographical isolation.

- Physical activity should be the focus of good health promotion campaigns.

In addition, other areas for action include:

- Expansion of the exercise on prescription scheme to include those who have a weight problem but are not suffering from coronary heart disease or other conditions.
- Ensure leisure centre staff undertake an accredited training programme in relation to health problems.

7.4. Promotion of culture and leisure

Getting people involved in activities such as arts and learning programmes can help promote self-esteem and reduce depression. This, in turn, can make people more receptive to learning about healthy lifestyles, increase their motivation to change and provide the confidence to transform their lives.

7.5. Development of healthy workplaces

The NHS and all public sector organisations need to demonstrate commitment to the healthy workplace. Activities should be organised in ways that improve the health of both their employees and the wider community by, for example, providing healthy foods in canteens and public buildings. The healthy workplace award schemes should be promoted and actively supported. These are awarded to organisations which promote the overall health of their employees.

7.6. Transport policies

Local transport policies should encourage people to move around more on bicycles or by foot. This would not only promote physical activity but also assist in improving the environment.

7.7. National action

Preventing obesity requires commitment across disciplines and good multi-agency working. Much can be achieved by engaging Local Strategic Partnerships at district and county level. However, overcoming the obesogenic environment also requires national political action. The recently published White Paper, *Choosing Health: Making Healthy Choices Easier*, recognises this and the government aims to:

- Raise awareness of the health risks of obesity and the steps people can take through diet and physical activity to avoid obesity;
- Empower people, support people when they want support and foster environments to enable people to adopt a healthy lifestyle;
- Develop a good nutritional labelling system for foods (by mid 2005) and to have implemented it by early 2006;
- Produce a food and health action plan, a Food Standards Agency strategic plan and a strategy for sustainable farming and food;
- Ensure that national transport policy promotes physical activity;
- Redress inequalities in access to healthy food (for example, by promoting community food initiatives);

- Promote the role of the NHS and other public sector organisations as good corporate citizens in supporting people to choose healthier options.

8. What needs to be done: treatment

Currently there is no well-defined care pathway for the management of obesity in County Durham and Darlington. A number of steps are required comprising: identification; assessment of the individual's readiness to change behaviour; development of a range of weight management programmes locally; development of specialist services. Initial identification and intervention will be delivered mainly through NHS primary care (General Practice) services and district council leisure services.

8.1. Identification

People with obesity present in a number of different ways. They frequently present to, and request help from, primary care/General Practice but may also access specialist dietetic services following referral within hospital. Patients may seek help for chronic conditions where obesity is a contributory factor but ask for treatment for that condition without recognising the value that weight-loss could contribute to the management of the condition. For some obese patients management of the condition requires weight loss, for example patients with type 2 diabetes or osteoarthritis of the knee.

Initial assessment includes BMI, waist circumference, risk factors and readiness for change. This should be recorded within a minimum dataset (Appendix 1). These data should then be used to allocate people to a suitable management strategy.

Risk factors

There are a number of important factors which increase the likelihood of serious adverse health effects and/or of continuing weight gain. The most important is already existing obesity-linked serious disease (co morbidity) such as type 2 diabetes or coronary heart disease. Risk factors for worsening obesity include:

- Rapid weight gain;
- Recently stopped smoking;
- Drug treatment known to cause weight gain such as steroids;
- Post pregnancy;
- Physically inactive due to age or disability;
- Family history of obesity;
- Some ethnic minority groups.

Assessment of readiness to change

Prior to any referral for treatment the individual's readiness to change should be assessed. Appendix 2 provides a suitable assessment tool. Only patients who appear likely to take action should be referred for weight management.

8.2. Development of appropriate interventions and pathways of care

Target setting

Before deciding which strategy should be adopted for weight loss a weight history (Table 4) should be determined for each patient and a weight target developed.

Table 4: Suggested questions to ask when taking a weight history

	Suggested Questions
Personal weight history	How long have you been your present weight? When did you start to put on weight? Was the weight gain slow or fast? What was your weight when you were 21? What weight have you been most of your life?
Family weight history	Is there a family history of obesity?
Dieting history	What diets/programmes have you tried in the past? What has/has not worked? How much weight did you lose? Did you keep this weight off?

When developing a weight target both weight history and the individual's expectations should be taken into account. Often expectations may be too ambitious and the benefits of moderate weight loss (5 to 10% of body weight) should be emphasised as the first goal. Setting this goal every 12 weeks may be more achievable than one long-term goal that may be hard to reach and so de-motivating. Individuals should be encouraged to aim for a steady weight loss of around 0.5 to 1kg (1 to 2lbs) per week.

Good information should then be supplied regarding what constitutes a balanced diet, how many calories are required to result in weight loss and what constitutes a food portion.

Management of individuals with a BMI of 18.5 to 24.9

Individuals with a normal BMI and no additional risk factors should be provided with the usual advice on healthy eating and physical activity.

Those with a normal BMI but at high risk of weight gain or with co-morbidities (for example, with glucose intolerance or an increased waist circumference) should be provided with more detailed advice.

Management of individuals with a BMI of over 25

Individuals with a raised BMI should be assessed according for additional risk factors and the extent to which they exceed the normal BMI range. A wide choice of management strategies should be available to take into account the likelihood that individuals will respond in different ways and with varying success to different schemes.

After each intervention the individual should be re-assessed. If they have successfully lost 5 to 10% of their initial body weight they should be monitored regularly to ensure they maintain their weight loss. If they have been unsuccessful in losing weight then they should be referred on to another weight loss strategy.

Appendix 3 outlines a staged approach to obesity management. Individuals presenting with significant co morbidities such as coronary heart disease will need additional management as described in the relevant National Service Framework.

9. What needs to be done: surveillance and monitoring

Currently, no population surveillance of levels of overweight and obesity exists in County Durham & Darlington. Our estimates of the size of the problem are based on surveys and may grossly under-estimate the size of the problem (page 14). Good data would enable us to calculate true prevalence rates. In addition, there is little good evidence about which interventions are most effective in tackling obesity. Gathering information about the success rates of different interventions is, therefore, also vital.

Data needs to be collected in relation to:

- Prevalence of overweight and obesity in adults and children across the population
- Prevalence of overweight and obesity of those in high risk groups (for example, those with coronary heart disease, diabetes, etc)
- Number of people receiving advice as a percentage of those who are overweight or obese
- Percentage of those receiving advice who achieve and maintain 5-10% weight loss at one year.

Collection of data to provide an accurate population based prevalence would be extremely difficult. Collecting data from those who present to primary care could be a more practical solution as would collecting it from those in each General Practice's chronic disease registers. Appendix 1 provides a suggested minimum dataset collection proforma that could be used at practice level.

10. Action Planning

The attached plan (Appendix 4) outlines the headline actions arising from this strategy.

Each LSP will need to develop more detailed action plans. Where further cross organisation planning is required (for example to develop the management protocols and business case for secondary and tertiary services in 4.2), a lead is proposed. Likewise in County Durham some actions will need to be across LSPs to match County level structures.

In terms of intervention services, there is a need to develop primary care based identification and weight management and referral services. It is likely that this will be best done by development of Locally Enhanced Services in terms of the new contract with General Practitioners. For primary care based surveillance, a modification of the General Practice Quality Outcomes Framework (QOF) is likely to be effective. Additional capacity and services need to be developed through

SureStart Programmes and Healthy Living Centres. A crucial component will be the expansion of exercise on referral schemes and Leisure Services capacity to engage with weight management.

Referral criteria and the development of additional capacity are required for surgical services. This work will need to be done across the six PCTs and possibly across the Strategic Health Authority area.

There are cost implications for a number of agencies in developing prevention and management services. These costs will need to be identified to funding agencies rapidly to ensure action is taken as soon as possible.

Appendix 1: Suggested data collection proforma (adapted from SIGN)¹²

Measured without shoes and in indoor clothing. Ensure regular calibration of scales	Body weight (kg)	
	Height (m)	
	BMI (kg/m ²)	
Measured in the standing position midway in the mid axillary line between the lowest rim of the rib cage and the iliac crest	Waist circumference (cm)	
	Weight history (tick)	
	Diet history (tick)	
	Blood pressure	
	Random blood glucose measurement	
Where there is history of coronary heart disease, Type 2 diabetes, hypertension or elevated random total cholesterol	Check alcohol intake – if high check plasma gamma glutamyl transferase activity	
	Fasting plasma cholesterol	
	LDL	
	HDL	
	Triglycerides	
	Current drug therapy	
	a) Prescribed	
b) Self prescribed		
Smoking		
Cigarettes/day		
Co-morbid conditions and risks		
a) coronary heart disease		
b) stroke		
c) diabetes mellitus		
d) gallstones		
e) infertility or menstrual disorders		
f) arthritis		
g) respiratory disease, sleep aponea		
h) endocrine disease		
Readiness to change stage (1 to 5)		

≥94cm (≅37") for men
 ≥80cm (≅32") for women
Indicates increased risk
 ≥102cm (≅40") for men
 ≥88cm (≅35") for women
Indicates substantial risk

If recent significant weight gain check TSH

Use current guidelines re acceptable levels

If >7mmol/l measure fasting blood glucose

Ensure patient has had coronary risk assessment

Appendix 2: Readiness to change assessment (adapted from Macqueen et al)^{35, 36}

1. Tick which statement best describes how you feel about losing weight
- I haven't given the matter of losing weight any thought at all
 - I think about losing weight from time to time and then put the matter out of my mind
 - I keep meaning to lose weight but don't actually get around to it
 - From time to time I go on a diet but at other times I go back to eating what I want
 - I have been consciously trying to lose weight for the last 6 weeks
 - I have been consciously trying to lose weight for longer than the last 6 weeks
2. It will be very difficult for me to lose weight in the next month (tick)
- Strongly agree
 - Agree
 - Uncertain
 - Disagree
 - Strongly disagree
3. I intend to lose weight in the next month (tick)
- Strongly agree
 - Agree
 - Uncertain
 - Disagree
 - Strongly disagree

Interpretation of question 1	Stage (Score)
I haven't given the matter of losing weight any thought at all	Pre-contemplation (1)
I think about losing weight from time to time	Pre-contemplation (1)
I keep meaning to lose weight but don't actually get around to it	Contemplation (2)
From time to time I go on a diet but at other times I go back to eating what I want	Preparation (3)
I have been consciously trying to lose weight for the last 6 weeks	Action (4)
I have been consciously trying to lose weight for longer than the last 6 weeks	Maintenance (5)
Interpretation of question 2	
Strongly Agree	Pre-contemplation (1)
Agree	Contemplation (2)
Uncertain	Preparation (3)
Disagree	Action (4)
Strongly disagree	Maintenance (5)
Interpretation of question 3	
Strongly agree	Maintenance (5)
Agree	Action (4)
Uncertain	Preparation (3)
Disagree	Contemplation (2)
Strongly disagree	Pre-contemplation (1)

NAME.....DATE / / SCORE.....

Appendix 4: ACTION PLAN (To be read in conjunction with Action Plan for Children and Young People)

1. Strategy endorsement and implementation				
Action	Organisation	Leads	Outputs	When
1.1 Endorse the strategy	LSPs	LSP Chair, DPH, LSP Support Officer		
1.2 Identify named group and lead to take strategy forward	LSPs		<ul style="list-style-type: none"> • Identified lead and subgroup/task group • May report to LSP via Health Policy Group or equivalent 	
1.3 Develop and agree local action plan based on this document	Nominated sub group/task group	Nominated lead	<ul style="list-style-type: none"> • Action plan to be developed for phased implementation • Costs for 2006/07 to be identified to funding agencies by October 2005, with work being taken forward in 2005/06 where resources permit. 	
2. Prevention				
Action	Organisation	Leads	Outputs	When
2.1 Ensuring healthy food available to all	NHS Local authority Commercial Sector	LSPs, PCTs	<ul style="list-style-type: none"> • Ensure healthy food available and promote the adoption of the Healthy Workplace award and Heartbeat award in <ul style="list-style-type: none"> - Workplace - Food outlets/restaurants - Schools - Leisure centres - Hospitals - Shops • Act to identify, prevent and tackle food deserts and ensure healthy fresh food available to all at a reasonable cost 	

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Prevention (cont)				
Action	Organisation	Leads	Outputs	When
2.2 Activities targeted at weight gain prevention in high risk groups	PCTs, SureStart local programmes, leisure services, voluntary agencies, culture services	LSPs, PCTs	Prevention strategies developed for all high risk groups including <ul style="list-style-type: none"> • Smoking cessation groups • SureStart families • Ethnic minority groups • Those with current disease <ul style="list-style-type: none"> - Coronary heart Disease - Diabetes - Hypertension - Hyperlipidemia - Depression - Arthritis • Those on weight promoting drug treatment or physically restricted 	
2.3 Promote physical activity	PCTs, SureStart local programmes, leisure services, voluntary agencies, culture services	LSPs, PCTs	<ul style="list-style-type: none"> • Physical activity promoted in numerous settings including <ul style="list-style-type: none"> - Workplace - Schools - Leisure centres - Hospitals • Implementation of the region's physical activity strategies • Increased capacity in the exercise on prescription schemes • Services developed to allow all groups access to physical activities • Accredited training of leisure centre staff 	
2.4 Local planning and transport policies	Local authorities	LSPs	<ul style="list-style-type: none"> • Local transport policy should promote physical activity • Consider the impact of planning and urban design on nutrition and activity: e.g. locate supermarkets to prevent food deserts; avoid fast food outlets near schools 	

Prevention (cont)				
Action	Organisation	Leads	Outputs	When
2.5 Communications	PCTs, SureStart local programmes, leisure services, voluntary agencies, culture services	PCTs and LSPs	<ul style="list-style-type: none"> Promote widely what constitutes a healthy diet and physical activity Use public organisation magazines and promotions effectively Use local authority services effectively; e.g. promote health through libraries etc 	
2.6 Lobby for national action	All	LSPs	<ul style="list-style-type: none"> National transport policy should promote physical activity National action should be taken on food advertising National action should be taken to ensure adequate labelling of food and to reduce the fat and sugar content of processed foods. 	
3. Identification of obese and overweight population				
Action	Organisation	Leads	Outputs	When
3.1 Identification of the overweight and obese	NHS, work place, slimming groups	PCTs	<ul style="list-style-type: none"> Identify patients in numerous settings for example, opportunistic screening in <ul style="list-style-type: none"> Primary care Leisure facilities SureStart Mechanisms in place to enable self referral Maximise identification of those individuals in high risk groups 	
3.2 Assessment of the overweight and obese	NHS	Primary and secondary care specialists	<ul style="list-style-type: none"> Recorded assessment of BMI & waist circumference Assessment of motivation and readiness to change Assessment of any co-morbidities 	
4. Management				
Action	Organisation	Leads	Outputs	When
4.1 Development of defined referral systems	Primary care, Secondary care, Dietetic services, Leisure centres, Commercial sector, Psychologists	Lead Director of Public Health and working group	Ensure adequate protocols developed to cover <ul style="list-style-type: none"> Development of primary care Local Enhanced Service model Referral criteria to secondary care services Referral to tertiary services for surgery 	

Management (cont)				
Action	Organisation	Leads	Outputs	When
4.2 Development of management and clinical protocols	<p>Primary care, Secondary care, Dietetic services, Leisure centres, Commercial sector, Psychologists,</p> <p>Medical practitioners, Pharmacists, Psychiatrists, Psychologists, Dietitians</p>	Lead Directors of Public Health and working group	<p>Ensure management of obesity flow chart (Appendix 3) is implemented through: -</p> <ul style="list-style-type: none"> • Initial diagnosis/assessment • Range of types of community – based interventions offered <ul style="list-style-type: none"> - Healthy living centre/SureStart - Accredited slimming club - Leisure services/exercise on prescription/community based weight control programmes - Slimming groups - One-to-one slimming sessions • Referral to secondary and tertiary services <ul style="list-style-type: none"> - Behavioural therapy - Psychological support - Drug therapy - Dietetic advice - Surgery • Quality patient information available • Provision of appropriate advice about diet and exercise • Monitoring of weight and re-enforcement of advice for both individuals and the effectiveness of schemes as a whole 	
4.3 Training and increasing capacity	PCTs and the County Durham & Darlington Acute Hospitals NHS Trust. Also medical schools, nursing schools, dietetic departments and CPD courses	Lead Directors of Public Health and specific working group	<ul style="list-style-type: none"> • Appropriate accredited training opportunities for primary care staff and allied professionals with significant patient contact • Greater capacity in primary care, dietetics, secondary care, leisure services and cultural services 	

5. Surveillance				
Action	Organisation	Leads	Outputs	When
5.1 Collect minimum dataset	Primary and secondary care	General Practitioners PCTs	Record: <ul style="list-style-type: none"> - BMI - Height & weight - Waist circumference - Co-morbidities - Weight history - Diet history - Blood pressure/cholesterol - Smoking status - Current drug therapy 	
5.2 Develop adequate County wide surveillance system	PCTs, the Public Health Network and the North East Public Health Observatory	Directors of Public Health Public Health Network	<ul style="list-style-type: none"> • Population surveillance of BMI for County Durham & Darlington to enable the monitoring of the prevalence of weight problems and the efficacy of interventions to manage the problem. • In addition, active surveillance will ensure all individuals with a problem can be referred for help 	

REFERENCES

- ¹ *National Service Framework for Coronary Heart Disease*. Department of Health. London; 2000
- ² *National Service Framework for Diabetes*. Department of Health. London; 2001
- ³ *National Cancer Plan*. Department of Health. London; 2000
- ⁴ *National Service Framework for Children, Young People & Maternity Services*. Department of Health. London; 2004
- ⁵ *Choosing Health: making healthy choices easier*. Department of Health. London 2004
- ⁶ Royal College of Physicians. *Storing up problems: The medical case for a slimmer nation*. London; 2004
- ⁷ *Tackling obesity in England*. Report by the Controller and Auditor General. London: National Audit Office; 2001
- ⁸ House of Commons Health Committee. *Obesity*. Third report of session 2003-04. May 2004
- ⁹ NHS Centre for Reviews & Dissemination. *Effective Health Care: The prevention and treatment of obesity*. Effective Health Care Bulletin 3; 2: 1997
- ¹⁰ Pirozzo S, Cameron C, Summerbell CD, Glasziou P. *Advice on low-fat diets for obesity* (Cochrane Review). In: The Cochrane Library, Issue 3, 2004. Chichester, UK: John Wiley & Sons
- ¹¹ Health Development Agency. *The management of overweight and obesity*. Health Development Agency. London; 2003. At: <http://www.publichealth.nice.org.uk/page.aspx?o=502623>
- ¹² Scottish Intercollegiate Guidelines Network. *Obesity in Scotland. Integrating prevention with weight management. A National Clinical Guideline recommended for use in Scotland*. SIGN publication No. 8. Edinburgh: SIGN; 1996
- ¹³ WHO. *Obesity: preventing and managing the global epidemic. Report of a WHO consultation on obesity*. Geneva: World Health Organisation; 1998
- ¹⁴ Health Survey for England 2002. Department of Health. At: <http://www.dh.gov.uk/assetRoot/04/06/60/70/04066070.xls>
- ¹⁵ Prentice AM, Jebb SA. Obesity in Britain: gluttony or sloth? *Brit Med J* 1995; 311: 437-9
- ¹⁶ Parsons T, Power C, Logan S & Summerbell C. Childhood predictions of adult obesity: a systematic review. *Int J Obes* 1999; 23: (Suppl): S1-107
- ¹⁷ Health Survey for England 1998. Department of Health. At: <http://www.archive.official-documents.co.uk/document/doh/survey98/hse-03.htm#3.5>
- ¹⁸ Flegal KM, Troiano RP, Pamuk E, Kuczmarski RJ & Campbell G. The influence of smoking cessation on the prevalence of overweight in the United States. *N Engl J Med* 1995; 333: 1165-70
- ¹⁹ NHS Centre for Reviews & Dissemination. *Ethnicity and health: reviews of literature and guidance for purchasers in the areas of cardiovascular disease, mental health and haemoglobinopathies*. York: University of York; 1996
- ²⁰ Lissner L & Heitmann BL. Dietary fat and obesity: evidence from epidemiology. *Eur J Clin Nutr* 1995; 49: 79-90
- ²¹ *Clinical management of overweight and obese patients*. London: Royal College of Physicians of London; 1998
- ²² Avenall A, Broom J, Brown TJ et al. *Systematic review of the long-term effects and economic consequences of treatment for obesity and implications for health improvement*. Health Technology Assessment 2004; 8: 21
- ²³ O'Meara S, Riemsma R, Shirran L, Mather L & Ter Riet G. *A rapid and systematic review of the clinical effectiveness and cost-effectiveness of Orlistat in the management of obesity*. Health Technology Assessment 2001; 5: 18

²⁴ O'Meara S, Riemsma R, Shirran L, Mather L & Ter Riet G. *The clinical and cost-effectiveness of sibutramine in the management of obesity: a technology assessment*. Health Technology Assessment 2002; 6: 6

²⁵ National Institute for Clinical Excellence. *Guidance on the Use of Surgery to Aid Weight Reduction for People with Morbid Obesity*. Technology Appraisal Guidance No 46. London: NICE, 2002.

²⁶ Agency for Healthcare Research and Quality. *Pharmacological and Surgical Treatment for Obesity*. Rockville, MD: Agency for Healthcare Research and Quality, 2004. At: <http://www.ahrq.gov/clinic/epcsums/obesephsum.pdf>

²⁷ Department of Health. *Health Survey for England: Health & lifestyle indicators for Strategic Health Authorities 1994-2002*. Department of Health 2004. At: <http://www.dh.gov.uk/assetRoot/04/07/77/31/04077731.pdf>

²⁸ North East Public Health Observatory. *Health & Lifestyle Survey for County Durham & Darlington*. NEPHO; 2003. At www.nepho.org.uk

²⁹ www.defra.gov.uk/farm/sustain/default.htm &

<http://www.defra.gov.uk/farm/sustain/regreport/NE.pdf>

³⁰ *County Durham Physical Activity Strategy, Draft Action Plan 2004*. Sport Durham; 2004

³¹ *Regional plan for sport & physical activity. Turning ambition into reality 2004-2008*. Sport England, North East; 2004.

³² North East Public Health Observatory. *Surgery to aid weight reduction in the North-East and Yorkshire and Humber Regions*. Occasional Paper No. 3. NEPHO; April 2004. . At www.nepho.org.uk

³³ County Durham and Darlington PCTs. *Tackling Obesity in Children and Young People in County Durham and Darlington*. Durham and Chester-le Street PCT; 2004

³⁴ www.food.gov.uk/foodindustry?Consultations/completed_consultations/comconsulteng/promofoodconsult

³⁵ Macqueen CE, Byrnes AE & Frost GS. Treating obesity: a follow-up study. Can the stages of change model be used as a postal screening tool? *J Human Nutr Dietet*. 2002; 15: 3-7

³⁶ Prochoska JO & DiClemente CC. Transtheoretical therapy: toward a more integrative model of change. *Psychother Theory Res Prac* 1982 19: 276-288