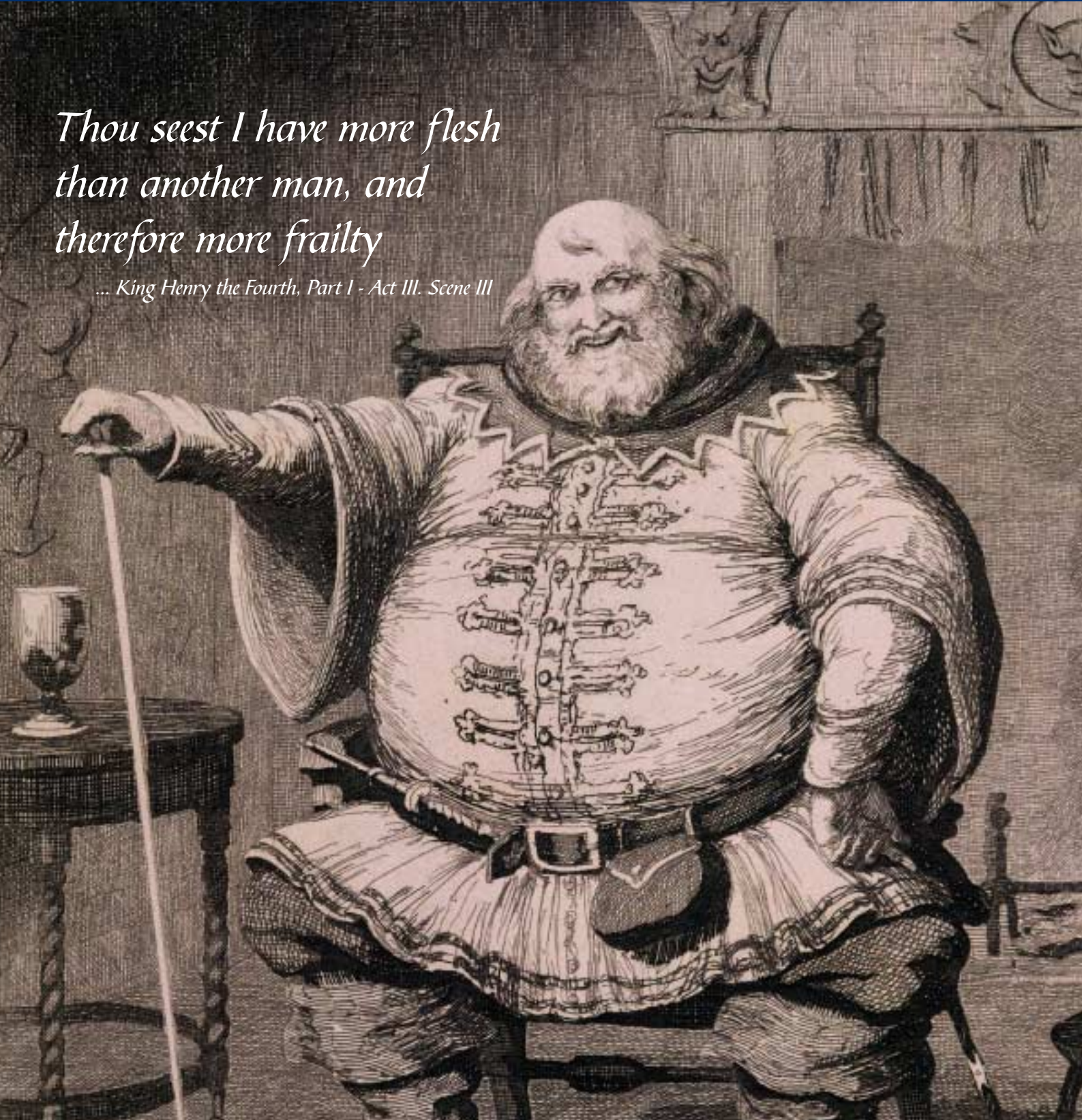


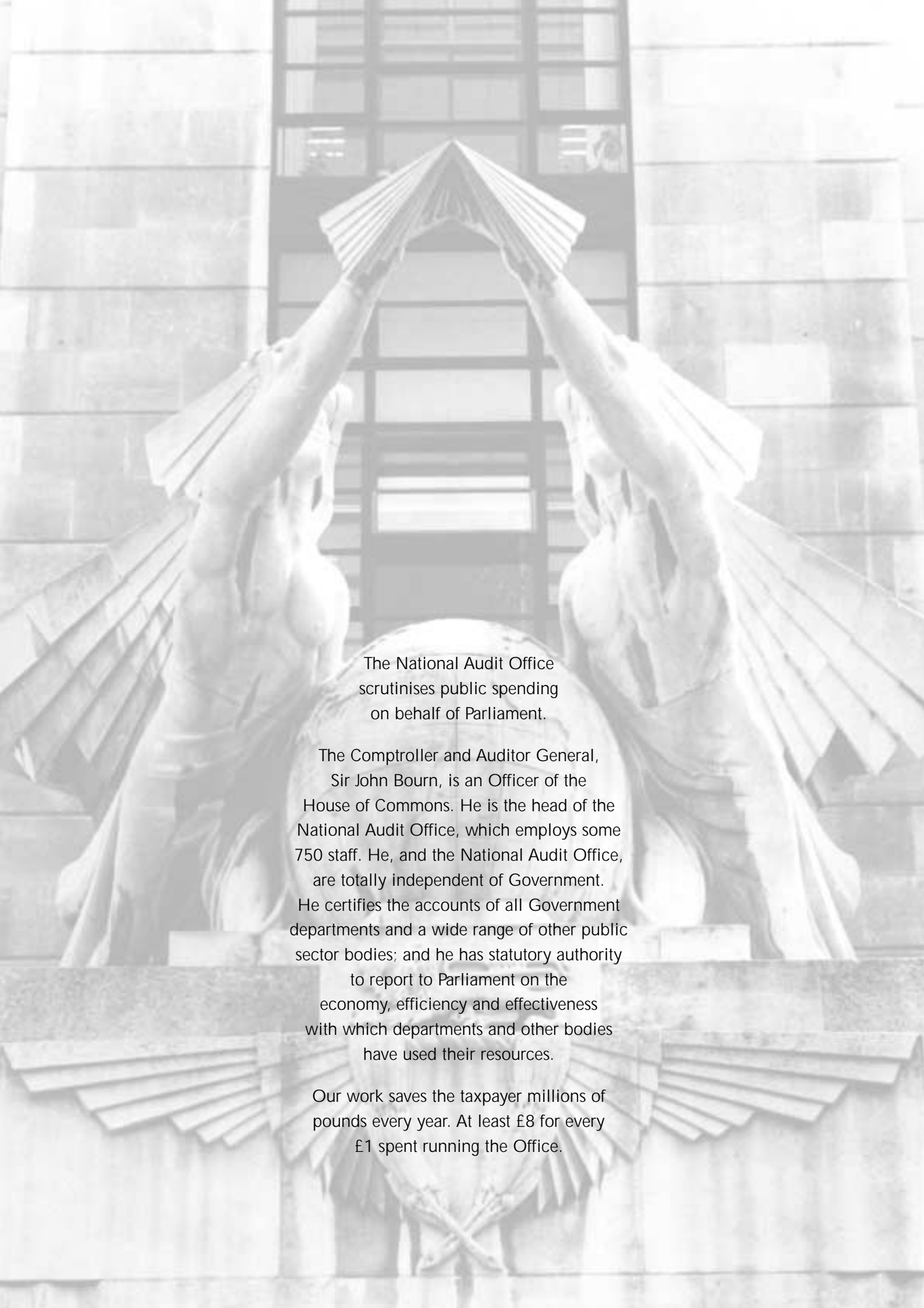
Tackling Obesity in England

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
HC 220 Session 2000-2001: 15 February 2001

*Thou seest I have more flesh
than another man, and
therefore more frailty*

... King Henry the Fourth, Part I - Act III. Scene III



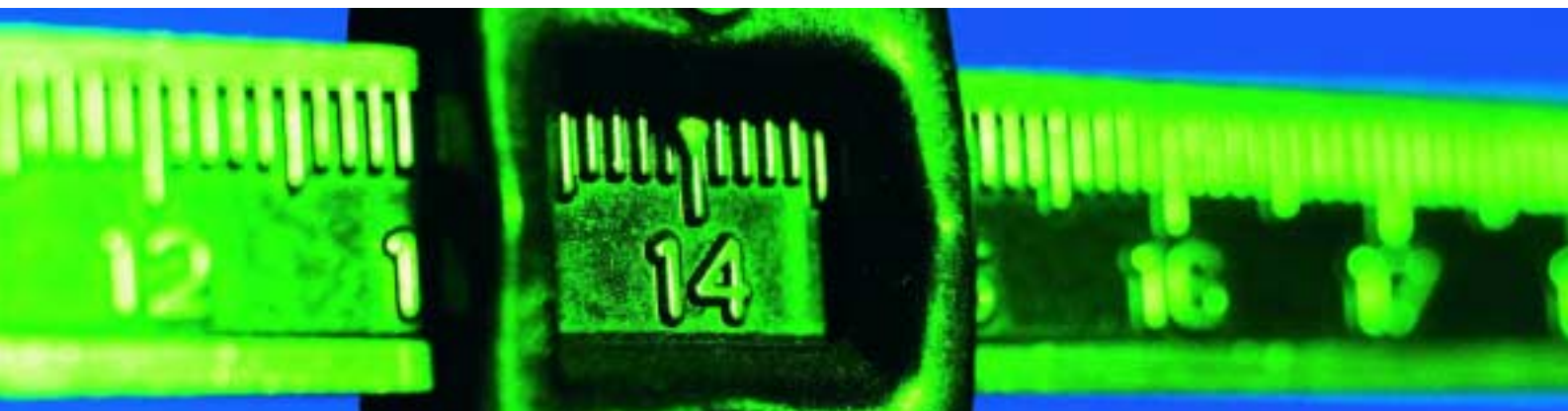


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Tackling Obesity in England



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This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn National Audit Office
Comptroller and Auditor General 7 February 2001

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executive summary & recommendations

- 1 Obesity occurs when a person puts on weight to the point that it seriously endangers health. Some people are more susceptible to weight gain for genetic reasons, but the fundamental cause of obesity is consuming more calories than are expended in daily life.
- 2 In 1980, eight per cent of women in England were classified as obese, compared to six per cent of men. By 1998, the prevalence of obesity had nearly trebled to 21 per cent of women and 17 per cent of men¹ and there is no sign that the upward trend is moderating. Currently, over half of women and about two thirds of men are either overweight or obese. The growth of obesity in England reflects a world-wide trend which is most marked in, though not restricted to, developed countries. Most evidence suggests that the main reason for the rising prevalence is a combination of less active lifestyles and changes in eating patterns.
- 3 Obesity has a substantial human cost by contributing to the onset of disease and premature mortality. It also has serious financial consequences for the National Health Service (NHS) and for the economy. Though there are inherent uncertainties in quantifying the link between obesity and associated disease, we estimate that it costs at least £½ billion a year in treatment costs to the NHS, and possibly in excess of £2 billion to the wider economy (Figure 1 and Appendix 6).

1 Key facts about obesity in England

- 1 in 5 adults is obese
- The number has trebled over the last 20 years
- Nearly two thirds of men and over half of women are overweight or obese

The four most common problems linked to obesity:

- Heart disease
- Type 2 diabetes
- High blood pressure
- Osteoarthritis

The estimated human cost:

- 18 million sick days a year
- 30,000 deaths a year, resulting in 40,000 lost years of working life
- Deaths linked to obesity shorten life by 9 years on average

The estimated financial cost:

- £½ billion a year in treatment costs to the NHS
- Possibly £2 billion a year impact on the economy


- 4 Obesity is not an easy problem to tackle, though even modest weight loss confers significant medical benefits. Against a background of rising prevalence, halting the upward trend presents a major challenge. Part of the solution lies in preventing people from becoming overweight and then obese, as much as helping those who are already obese. As a lifestyle issue, the scope for policy to effect such changes in a direct way is very limited. The Department of Health cannot by itself be expected to be able to 'cure' the problem.

- 5 The Government believes, however, that prevention is important. The Department of Health has prioritised the reduction of coronary heart disease and cancers, and is developing preventive strategies to improve diet and physical activity. The NHS provides management of obesity, ranging from general advice on diet and exercise to onward referral for specialist help. Other Government departments have an influence through school education and the promotion of healthy eating and physically active travel and recreation.
- 6 We examined the way in which the NHS manages the problem of obesity. We found that many health authorities reflected the problem in their local health planning, and some had dedicated strategies to address it. The National Service Framework for coronary heart disease, published in March 2000, signals the Department of Health's intention to ensure that, in future, all NHS bodies, working closely with local authorities, will develop and implement effective policies for reducing overweight and obesity.
- 7 Within the NHS, most contact with overweight and obese people occurs in general practice. We surveyed general practitioners and practice nurses and found that many provided valuable services in identifying those at risk from weight gain and offering advice and support. But this was not universally the case, and there is scope to clarify the role of the primary care team and spread good practice. There is uncertainty about which interventions are effective in preventing and treating obesity, and our survey identified a widespread feeling amongst general practitioners that they need more information on how to address weight issues effectively, and that guidance would be valuable.
- 8 We also assessed how well the various public sector agencies combine to influence the prevalence of obesity. We found that while Government departments are working closely together, particularly to encourage healthy lifestyles amongst schoolchildren, there are opportunities to build further on the success of joint working to date.
- 9 One function of this report is to stimulate wider debate, and contribute to the development of longer term changes in which individuals are aware of the problems of obesity. We view this in the same light as another lifestyle issue - smoking - where education and time have brought about significant changes for the better. Our detailed findings and recommendations follow.

Main findings and recommendations on the management of obesity in the NHS

- 10 We found that while significant health benefits could be achieved through interventions that help people to lose excess weight, the management of overweight and obese patients within the NHS was patchy. Local strategies to address obesity had been developed in some areas, but not in the majority.
- 11 At the time of our research in Summer 1999, there were no national guidelines for health authorities on how their plans should address obesity. A large majority of health authorities (83 per cent) had identified obesity as a public health risk in their Health Improvement Programme, but far fewer (28 per cent) had taken action to address it. About 50 per cent of health authorities told us that, though they did not have a dedicated obesity strategy, their plans would help to prevent weight gain and obesity by promoting healthy eating and physical activity as part of coronary heart disease or cancer prevention programmes. Health authorities' future plans are expected to take account of guidance on effective strategies to address overweight and obesity, published in September 2000 by the Health Development Agency in its report on implementing the preventive aspects of the National Service Framework for coronary heart disease.



- 
- 12 Within general practice, there is a wide range of different methods which general practitioners and practice nurses use for managing overweight and obese patients, and many remain uncertain about which interventions are the most effective. Whilst drug therapy, for example, was used by about 40 per cent of general practitioners in our survey, most of those we interviewed had reservations about its effectiveness, despite recognising that it could be a useful aid to accelerating weight loss for some patients. The National Institute for Clinical Excellence is currently undertaking an examination of anti-obesity drugs to enable it to advise on their clinical and cost effectiveness.
 - 13 We also found some confusion over roles and responsibilities, and evidence of a lack of 'buy in' by general practitioners for helping overweight and obese patients to control their weight. There are wide divergences between practices over aspects of management, including their use of health promotion on weight control, diet and physical activity, and the extent to which they try to assess which patients are at risk from excessive weight gain. Only a small minority of practices were using a protocol for the management of obese patients, but the majority said that they would find a national protocol or guidelines useful.
 - 14 In general, there is little NHS activity related to the management of obesity outside general practice. Some hospitals provide a valuable service by screening pre-operative patients for obesity, and referring those who might benefit from weight management to their general practitioner for advice and treatment. There are also a number of specialist centres for the treatment of obesity, normally offering drug therapy, and about 200 surgical interventions for cases of extreme obesity each year. Resource constraints prevent specialist centres from treating more than a small minority of those obese patients who seek help from the NHS. There may be scope for more patients to benefit from such specialist treatments, although to date there is only limited evidence of their long term effectiveness.
 - 15 We conclude that the NHS has a key role in assessing the risks from obesity at the national and local levels, and devising appropriate strategies to reduce its impact. But work is needed at the local level to develop and implement effective policies to prevent overweight and obesity, and to tackle the wider health impacts of obesity through effective treatment programmes. In particular, the NHS needs to focus on identifying and helping those who are at high risk of obesity. This would include targeting interventions at the large proportion of the population already in the "overweight" category, and at those groups where the prevalence of obesity is highest, such as Black Caribbean and Pakistani women.
 - 16 General practitioners and their teams can play a key role in assessing the risk to patients, providing health promotion, and providing individual advice and onward referral to relevant specialists. However, these activities need to be undertaken on a more consistent basis across general practice than is currently the case. There are opportunities for identifying and spreading good practice more widely.
 - 17 We recommend in particular that:
 - in devising local strategies to reduce overweight and obesity, health authorities must have regard to the Health Development Agency's guidance on which interventions have proved most effective;
 - health authorities should ensure that they set realistic milestones and targets for improving nutrition and diet, for promoting physical activity and for arresting the rising trends in the prevalence of overweight and obesity. They should also develop indicators of progress in reducing health inequalities through initiatives that target the population groups at highest risk;

- the Department of Health should commission an appraisal of the effectiveness of interventions for treating overweight and obese people, both within general practice and through onward referral. This review should include the potential role hospitals and specialist weight loss clinics can play in assessment and treatment, and whether access to such services should be broadened;
- the Department of Health should build on the plan in the National Service Framework for coronary heart disease for a full assessment of risk factors to be carried out in general practice. The Department should work with its partners and the professional bodies to clarify the responsibilities of general practitioners and the wider primary care team for identifying people at risk from excess weight;
- the Department of Health should liaise with the National Institute for Clinical Excellence to draw together and ensure the effective dissemination of guidelines for the management of overweight and obese patients in primary care. This report provides an initial guide of what general practices would find useful.

Main findings and recommendations on cross-Government initiatives to prevent obesity

- 18** We found a substantial amount of cross-departmental work in the areas that are central to addressing the rising prevalence of obesity - principally education, physical activity and diet. Much of this activity is targeted at schoolchildren. This promotes healthier lifestyles subsequently throughout adult life, and addresses a section of the population for which obesity is becoming an increasing problem.
- 19** We conclude that there is a need for the departments involved in this joint working to build on their successes and to involve other partners at the national and local level to develop and implement cohesive strategies for prevention, which encompass adults as well as young people. At the national level, this is taking place to an increasing extent, and departments should develop joint objectives and performance targets relating to aspects of physical activity and diet to ensure that this progress is consolidated. At the local level, health authorities are well placed to trigger such activity by developing Health Improvement Programmes that involve a wide range of other partners in schemes to increase cycling, walking and physical recreation and to improve diet, such as through increased consumption of fruit and vegetables.



20 We recommend in particular that:

- the Department of Health should reinforce existing joint working over the commissioning of relevant surveys and research by establishing a cross-departmental advisory group to co-ordinate all research on obesity and measures to prevent it;
- the Department of Health should lead the development of a new cross-Government strategy to promote the health benefits of physical activity. This should include work to develop and support alternative approaches for groups where there are specific barriers to physical activity, such as those imposed by poverty, cultural beliefs or fears about personal safety;
- the Department of Health and the Department of the Environment, Transport and the Regions should continue to encourage other potential partners, in particular local authorities and health authorities, to adopt local targets for cycling and walking which provide clear incentives to support healthy modes of travel. They should also put in place arrangements to monitor centrally progress towards achieving these targets;
- based on the work of the School Transport Advisory Group, the Department of the Environment, Transport and the Regions, the Department of Health and the Department for Education and Employment should work with local agencies to help them develop targets to increase the number of school journeys undertaken by bicycle, on foot or on public transport;
- the Department of Health and the Department for Culture, Media and Sport should consider the adoption of joint performance targets for increasing the number of people participating in sport and physically active leisure activities. This should build on the strategic target set by the Department for Culture, Media and Sport to raise significantly, year on year, the average time spent on sport and physical activity by those aged 5 to 16;
- the Department for Education and Employment should continue to encourage all schools to achieve the stated aspiration of at least two hours physical activity a week for all pupils. This aspiration should remain a core aspect of the expectations set out in the National Healthy School Standard, and the Department for Education and Employment and the Department of Health should continue to develop ways in which the Standard can be used to reinforce and strengthen physical activity in schools;



- a joint advisory and co-ordinating group, such as the School Sport Alliance, should monitor the success of initiatives to increase physical activity in schools. The group should include representation from the Department for Education and Employment, the Department of Health, the Department for Culture, Media and Sport, and Sport England. It should evaluate work carried out to date and develop ways to build on progress already made;
- the Department of Health should give a high priority to implementing the initiatives on nutrition listed in the NHS Plan, working with the food industry, including manufacturers and caterers, to improve the balance of diet;
- the Department of Health and the Department for Education and Employment should work together, seeking the technical advice and support of the Food Standards Agency where appropriate, to establish ways to monitor the overall impact of initiatives to improve the nutritional quality of food provided in school. They should consider developing a performance target for achieving an increase in the quantity of fruit and vegetables consumed in school;
- the Department for Education and Employment should work with the National Consumer Council to strengthen guidance to schools on commercial sponsorship to ensure that they take full account of the potential disadvantages of participating in schemes that might promote behaviours contrary to key messages on healthy eating.



Part 1

Introduction

What is obesity?

1.1 Obesity is a condition in which weight gain has reached the point of seriously endangering health. While some people are more genetically susceptible than others, the direct cause of obesity in any individual is always an excess of energy intake over energy expenditure. Virtually all obese people develop some associated physical symptoms by the age of 40, and the majority will require medical intervention for diseases that develop as a result of their obesity before they are 60².

Why we studied obesity

1.2 Obesity has a substantial human cost by contributing to the onset of disease and premature mortality. It also has serious financial consequences for the NHS and the economy. These costs are increasing as around 20 per cent of the population is now classified as obese, and the upward trend over the last 20 years is continuing¹. We carried out this study:

- to identify and measure the human costs of obesity, and to estimate the financial costs to the NHS and the wider English economy (Part 2);
- to assess how the NHS, and in particular the primary care sector, is responding to the problem (Part 3);
- to examine how effectively different Government departments are working together to create an environment conducive to limiting the prevalence of obesity (Part 4); and
- to make recommendations that might help to create a climate in which individuals are aware of the consequences of obesity, and can make informed decisions about their lifestyle. In this we draw a parallel with another serious lifestyle issue - smoking - where such an approach has been successful in reducing prevalence within the population as a whole, if not in all sections of it.

The administrative context

1.3 Although obesity is intricately bound up with individuals' lifestyles, a number of public sector agencies play a potentially significant role in shaping the policy response. **Figure 2** gives an overview of the role of the various bodies described below.

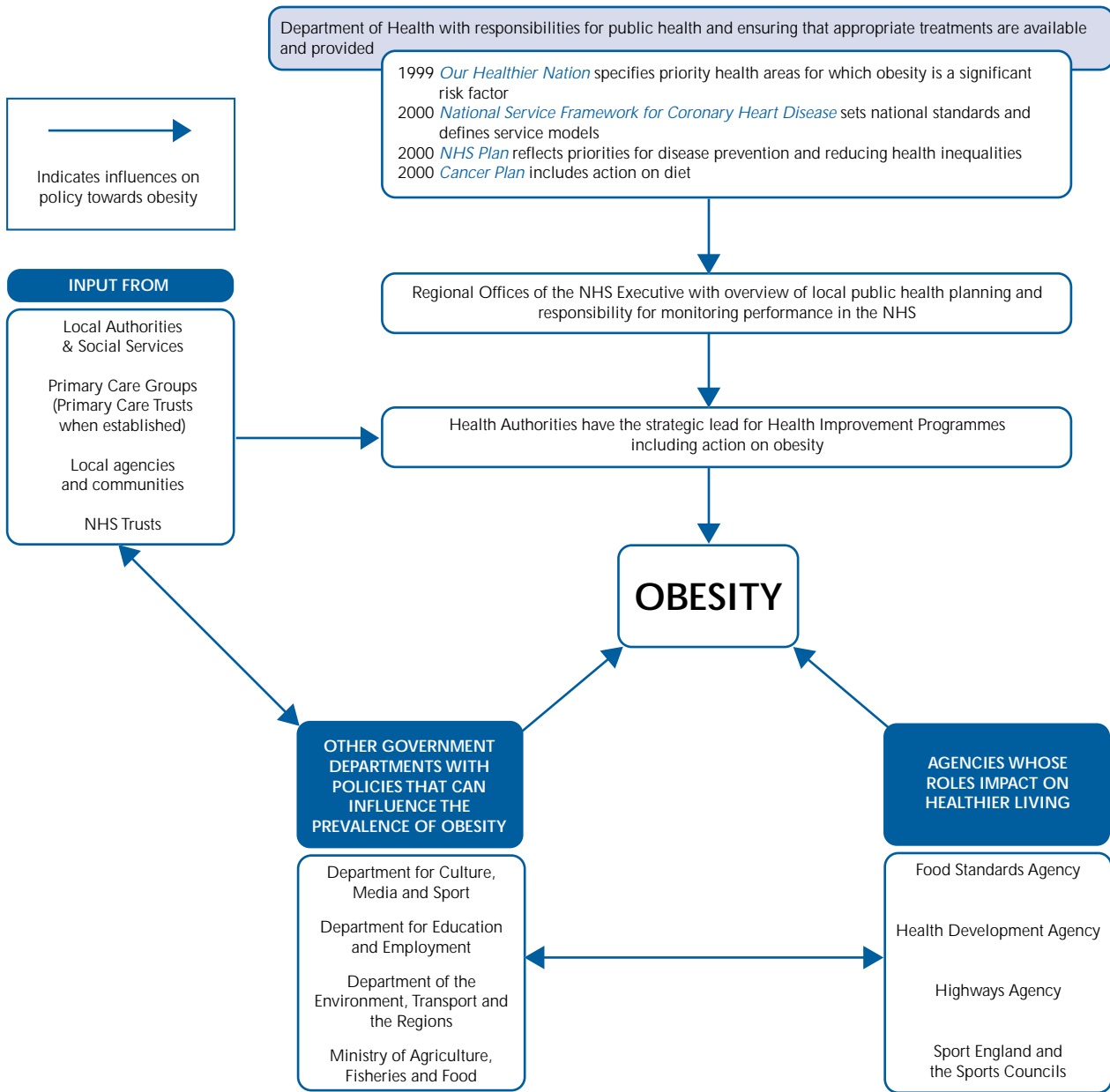
The Department of Health

1.4 The management of public health risks such as obesity falls within the Department of Health's strategic objective "to reduce avoidable illness, disease and injury in the population". Within this overall goal, there are four relevant policy objectives:

- to work across Government and with local agencies and groups on a range of measures designed to improve the health of the public;
- to provide accurate and accessible information on how to reduce the risk of illness, disease and injury;
- to encourage people to live healthily; and
- to raise standards and set targets to galvanise and encourage widespread improvements in public health, and a narrowing of current inequalities in health status.

1.5 In 1992, the Department of Health launched the cross-Governmental 'Health of the Nation' strategy³. This included 27 targets related to the achievement of better health in England. Two of the Department's targets related to the fat content of the diet, and two others to the future prevalence of obesity for men and women. We reviewed progress towards these targets in 1996⁴.

2 The ways in which the public sector influences the prevalence of obesity



1.6 In 1999, the Department introduced a new cross-Government strategy, 'Saving Lives: Our Healthier Nation'⁵, superseding 'Health of the Nation'. This focused on four main priority areas of ill health and premature death, including coronary heart disease and cancer. There are no specific objectives or targets in the new strategy to reduce or limit the increase in the prevalence of obesity. The strategy does, however, recognise obesity as an important risk factor for coronary heart disease and for some cancers. The approach is to address risk factors such as obesity by encouraging healthy living patterns, such as healthy eating and regular physical activity, which are key to the prevention of coronary heart disease and some cancers.

1.7 In 2000, the 'National Service Framework for Coronary Heart Disease' was published⁶. This document sets national standards and defines service models for the prevention and treatment of coronary heart disease. Early milestones include the delivery of local programmes of effective policies on reducing overweight and obesity, promoting healthy eating and increasing physical activity. The 'NHS Plan: A Plan For Investment. A Plan for Reform', also published in 2000⁷, further highlights the importance of diet and nutrition to improve health and reduce health inequalities. The commitment is that by 2004, there will be local action to tackle obesity and physical inactivity, informed by advice from the Health Development Agency on what works.

Regional Offices of the NHS Executive and health authorities

1.8 The Department of Health also assumes overall responsibility for ensuring that appropriate treatments are identified and made available through the National Health Service. The eight Regional Offices of the NHS Executive work with health authorities to ensure that each region has a set of Health Improvement Programmes which address local needs and are consistent with the national priorities of the NHS. Health authorities have a strategic role to co-ordinate the local health economy to deliver on the NHS priorities, including by providing the standards and service models set out in National Service Frameworks. In compiling its Health Improvement Programme, each health authority is required to involve a wide range of local stakeholders including Primary Care Groups and Trusts, NHS Trusts, general practices, local authorities, and local agencies and communities.

NHS providers

- 1.9 As detailed in the National Service Framework for coronary heart disease⁶, NHS Trusts and Primary Care Groups and Trusts are required to contribute to the delivery of local programmes of effective policies for reducing overweight and obesity.
- 1.10 General practices are where 95 per cent of patient contacts with the NHS occur⁸. General practitioners are required to offer all newly registered patients a consultation with a full physical examination comprising the measurement of height and weight. Thereafter, general practitioners are required to offer physical examinations for the purpose of identifying and reducing the risk of disease. The National Service Framework for coronary heart disease sets out a programme of action to improve services for coronary heart disease. The first priority is to identify and treat people with established cardiovascular disease. A later stage will be to identify people at significant risk of cardiovascular disease and to offer appropriate advice and treatment to reduce their risks. This includes advice on reduction in weight or referral to appropriate specialists. General practices also provide a forum to offer broad advice to patients on healthy living, such as on healthy eating and the benefits of physical activity.

1.11 The NHS more widely finances and monitors specialist help for obese patients referred by general practitioners, involving dietetics, hospital-based clinics and, in some cases, surgery. Hospital admissions also provide an opportunity to assess health risks associated with excess weight and to refer patients for appropriate help.

Other Government departments

- 1.12 The Public Health Group of the Department of Health liaises with the representatives of other Government departments in order to advise on policies and initiatives to improve health, in particular in relation to diet and nutrition, health education, transport and physical recreation.
- 1.13 Relevant Government departments and agencies include the Department for Culture, Media and Sport, Sport England and the Sports Councils; the Department for Education and Employment; the Department of the Environment, Transport and the Regions and the Highways Agency; the Food Standards Agency; and the Ministry of Agriculture, Fisheries and Food. They have a general duty to work with the Department of Health as part of joining up government within the overall umbrella of the Modernising Government initiative⁹. They also have specific objectives that relate to protecting the public health and promoting healthy lifestyles, for example through improving diet, achieving wider participation in sport and physical activity, and encouraging healthy modes of transport.

Study methodology

1.14 Our methodology is set out in detail in Appendix 1. The main features are:

- literature review and consultation with representatives of a wide range of interested parties, including voluntary bodies representing obese people;
- advice from a panel of eminent experts on obesity;
- a cost-of-illness study undertaken for us by the Department of Economics at City University. Appendix 6 contains the detailed methodology for this study;
- a survey of all health authorities in the Summer of 1999 to examine their role in planning and co-ordinating initiatives to address obesity and promote healthy lifestyles;
- a postal survey of a representative sample of 1,200 general practitioners and 1,200 practice nurses in Summer 1999 to establish how overweight and obese patients visiting their general practice are managed;
- face-to-face interviews with 20 general practitioners and 16 practice nurses in November and December 1999 to learn more about their experiences of treating obese patients and their perceptions of the problem;
- interviews with policy personnel at the relevant Government departments to examine how effectively departments were working together and with other agencies to promote healthy lifestyles; and
- site visits to examine local initiatives at schools and hospitals and specialist centres.

Part 2

The prevalence and costs of obesity in England

A standard definition of obesity

2.1 Obesity is most commonly defined by clinicians in terms of the body mass index (BMI). The BMI is calculated as follows:

$$\frac{\text{Weight in kilogrammes}}{(\text{Height in metres})^2} = \text{BMI}$$

2.2 A desirable body mass index is considered to be in the region 20 to 25. Anything above this is defined as 'overweight', and a BMI over 30 is defined as 'obese'.

Figure 3 illustrates the range of BMI classifications and Appendix 2 provides further details.

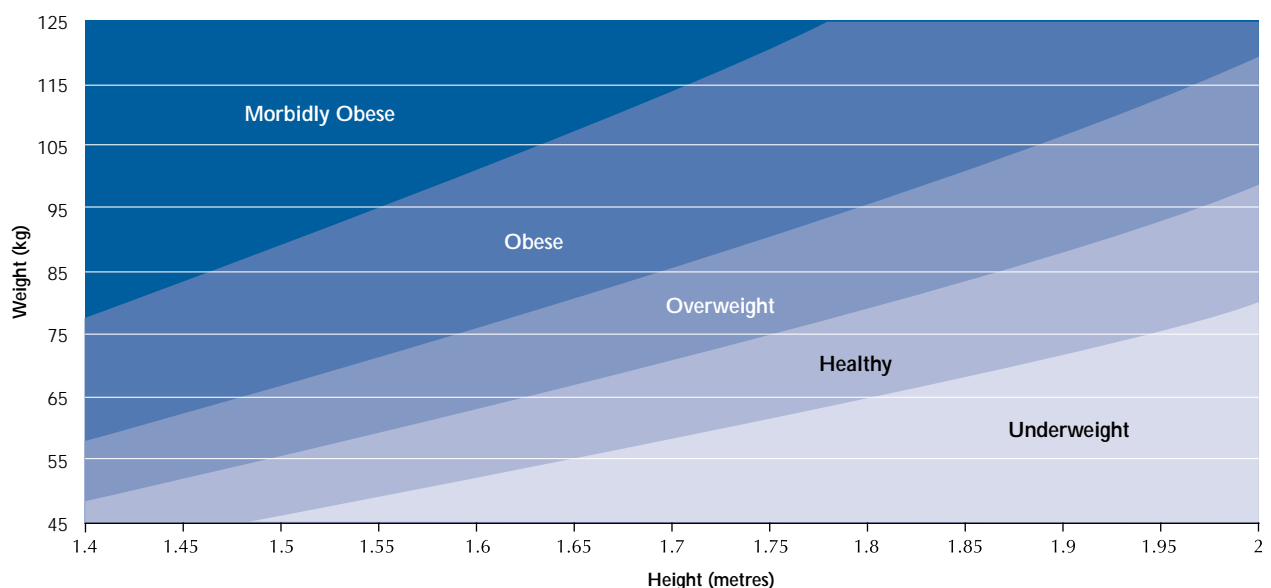
2.3 The health hazards of obesity are compounded by the influence of fat which is distributed around the waist, more typical of obese men than women. For this reason, the waist circumference and waist-hip ratio are also used to assess the risks associated with obesity. Though there is no consensus about the cut off points that define

obesity using these indicators, a report by the World Health Organization¹⁰ suggests that increased risk is present when the waist circumference exceeds 94 cm (37 inches) for men or 80 cm (32 inches) for women.

About a fifth of the population is obese and nearly two thirds of men and over half of women in England are either overweight or obese

2.4 In 1998, the year for which most recent figures are available, 19 per cent of adults in England were obese, with a BMI over 30¹. More women than men were obese - 21 per cent of women compared to 17 per cent of men. But more men than women were in the overweight category (BMI between 25 and 30) - 46 per cent compared to 32 per cent. Combining the overweight and obese groups, in 1998 nearly two thirds of men and just over half of women were either overweight or obese.

3 Different categories of weight defined by Body Mass Index (kg/m²)



Source: National Audit Office based on classifications used in the Health Survey for England¹

The prevalence of obesity in England has almost tripled since 1980 and will increase further on present trends

- 2.5 In 1980, eight per cent of women and six per cent of men were classified as obese. By 1998, the prevalence of obesity had nearly tripled to 21 per cent of women and 17 per cent of men, and there is no sign that the upward trend is moderating. This reflects a world-wide trend which is most marked in, though not restricted to, developed countries (Appendix 3).
- 2.6 Given that the current level of obesity in England is unprecedented, it cannot be extrapolated forward with any degree of certainty. But if the average rate of increase in the prevalence of obesity between 1980 and 1998 continues, over one fifth of men and about a quarter of women in England will be obese by 2005, and over a quarter of all adults by 2010 (Figure 4). This would bring levels of obesity in England up to those experienced now in the United States. Our extrapolation is simple, but quite possibly realistic.

Evidence suggests that obesity is increasing more rapidly in England than in other parts of Europe

- 2.7 In the majority of European countries, where lifestyles and cultures are essentially comparable, the International Obesity Task Force estimates that the prevalence of obesity increased by between 10 to 40 per cent from the late 1980s to the late 1990s¹¹. In England, however, prevalence nearly doubled over this period. This means that, whilst in the late 1980s the

prevalence of obesity in England was towards the lower end of the range for European countries, by the late 1990s it had moved to near the top of the range. (Although directly comparable figures for individual countries are not available, the Task Force estimates that prevalence varies between different countries in Europe from 10 to 20 per cent for men, and from 10 to 25 per cent for women).

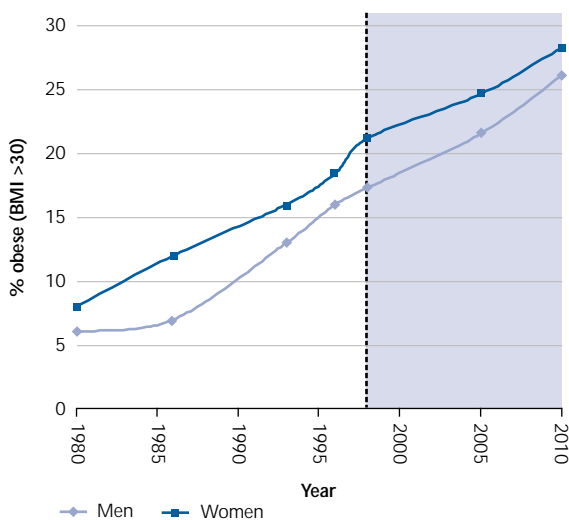
The distribution of obesity in the population

- 2.8 Some people are at a high risk of becoming obese for very specific reasons. For example, children who have at least one obese parent are at higher risk of being obese themselves, reflecting general household patterns of eating and physical activity¹², as well as genetic factors that may explain differences in the way individuals respond to similar lifestyles. Other high risk groups include recent successful weight reducers, who are prone to regain weight unless they sustain changes to their lifestyle in the long term, and people who have recently stopped smoking who may experience a heightened appetite¹³. People with physical or learning disabilities may also be at high risk of becoming obese, in particular when opportunities for exercise are restricted.

- 2.9 A detailed analysis of the distribution of obesity in England is given in Appendix 4. The main points are:

- obesity in the population increases with age;
- the prevalence of obesity amongst schoolchildren appears to be increasing, which potentially bears major risks for the health of the future adult population;
- people in lower socio-economic groups, particularly women, have an increased risk of obesity;
- there is a higher prevalence of obesity among certain ethnic groups, in particular among Black Caribbean and Pakistani women; and
- obesity is a growing problem in all regions in England. Prevalence in 1998 ranged from 18 per cent of adults in the lowest regions to 22 per cent in the highest, and in all regions had risen since it was previously measured in 1996.

4 Trends in the prevalence of obesity amongst men and women in England extrapolated to 2010



Note: Figures beyond 1998 were extrapolated on a straight line by the least squares method on the basis of data from 1980

Source: National Audit Office analysis of data from the Health Survey for England¹

Changes in eating patterns and increasingly sedentary lifestyles are the most likely explanation for the upward trend in obesity

2.10 The rapid increase in obesity levels has occurred in too short a time for there to have been significant genetic changes within the population. It is therefore likely that the global obesity problem has been brought about primarily by environmental and behavioural changes which have led to a more energy-dense diet and a rise in the level of sedentary behaviour.

Eating patterns

2.11 Both total energy intake and the composition of the diet are important factors in influencing changes in body weight. The relationship between changes in eating patterns and the increasing prevalence of obesity is not clear. Data from the National Food Survey¹⁴ show that household energy intake increased from the late 1950s to a peak in 1970, and since then has declined. On this basis, the major increase in the prevalence of obesity in England, since 1980, has occurred at a time when the energy consumed from food appears to have been decreasing.

2.12 However, it is important to note that the falling trend in energy intake suggested by the National Food Survey does not take account of alcoholic and soft drinks and confectionery brought home, or food and drink purchased and eaten outside the home. In 1998, these components, which have only been recorded since 1994, accounted for about an extra 20 per cent of energy intake. Eating outside the home is becoming increasingly popular, and surveys indicate that the food eaten out tends to be higher in fat than food consumed in the home. Fat has a higher energy density than other components, and fatty foods tend not to satiate the appetite as quickly as foods that are high in carbohydrates. Exposure to high fat foods is thought to be largely responsible for the 'over-eating effect', also known as 'passive over-consumption', where the appetite fails to regulate adequately the amount of energy consumed¹⁰. The ready availability and extensive marketing of highly palatable, energy-dense foods may be contributing to an increasing tendency towards over-consumption for those people who do not consciously regulate their diet.

Physical activity patterns

2.13 Though comprehensive data on trends in the level of physical activity in the population are not available, the upward trend for obesity appears to parallel a reduction in physical activity and a rise in sedentary behaviour. A study commissioned by Sport England, for example, showed that the proportion of young people spending two or more hours per week in curricular school sport had decreased from 46 per cent in 1994 to 33 per cent in 1999¹⁵. Similarly, between 1986 and 1996 the proportion of under 17 year-olds walking to school fell from 59 per cent to 49 per cent, whilst the number of car journeys to school nearly doubled¹⁶. At the same time, there has been an increase in the number of hours devoted to many sedentary activities. For example, the average person in England watched over 26 hours of television a week in the mid-1990s, compared with 13 hours in the 1960s¹⁷.

2.14 There is also increasing evidence that many people are not taking sufficient exercise to have a significant benefit to their health. Data from studies undertaken in England in 1998¹ demonstrated that, using a criterion of less than one 30 minute period of moderate activity per week, 23 per cent of men and 26 per cent of women were sedentary. A quarter of women and just over a third of men engaged in regular, moderate activity. More recently, the National Diet and Nutrition Survey, published in 2000, which measured physical activity levels of young people aged between 7 and 18, showed that most young people in this age group were inactive, as indicated by time spent in moderate or vigorous intensity activities¹⁸.

2.15 A number of factors may have contributed to a reduction in the amount of physical activity¹⁰. These include:

- a reduction in occupational exercise. The extra physical activity involved in daily living 50 years ago, compared with today, has been estimated to be the equivalent of running a marathon a week;
- a reduction in exercise due to greater use of the car and wider car ownership;
- the decline of walking as a mode of transport. One reason for this is heightened fears about personal safety, which affect some groups of the population more than others. For example, children, women and older people, especially those living in inner cities, are likely to feel particularly vulnerable;
- an increase in energy-saving devices in public places, such as escalators, lifts and automatic doors;

- less opportunities for young people to take physical exercise. Factors influencing this include increasing fears among parents about their children's safety when unsupervised, and a reduction in the amount of physical education and sport undertaken in some schools;
- the substitution of physically active leisure with sedentary pastimes such as television, computer games and the internet;
- fear of racial harassment and cultural beliefs which may prevent people from certain black and minority ethnic groups from taking exercise. Different avenues may therefore be required to promote physical exercise for these groups.

The substantial human costs of obesity

2.16 Obesity is an important risk factor for a number of chronic diseases that constitute the principal causes of death in England, including heart disease, stroke and some cancers. It also contributes to other serious life shortening conditions such as Type 2 diabetes. As well as physical symptoms, the psychological and social burdens of obesity can be significant: social stigma, low self-esteem, reduced mobility and a generally poorer quality of life are common experiences for many obese people¹⁰. **Appendix 5** provides an analysis of the specific links between obesity and the most common serious diseases with which it is associated.

2.17 **Figure 5** indicates the extent to which obesity increases the risks of developing a number of these diseases relative to the non-obese population. The relative risks are based on a comprehensive review of international literature which we carried out to provide the best estimates that could be applied to the English population (**Appendix 6**). The basis of the estimates varies due to differences in the methodologies of the studies selected, but the table gives a broad indication of the strength of the association between obesity and each of the main secondary disease types.

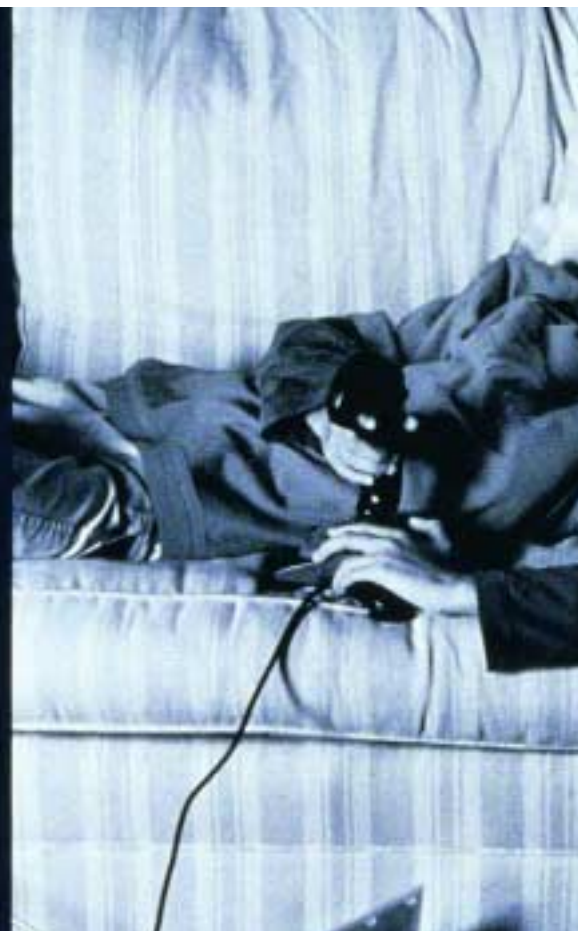
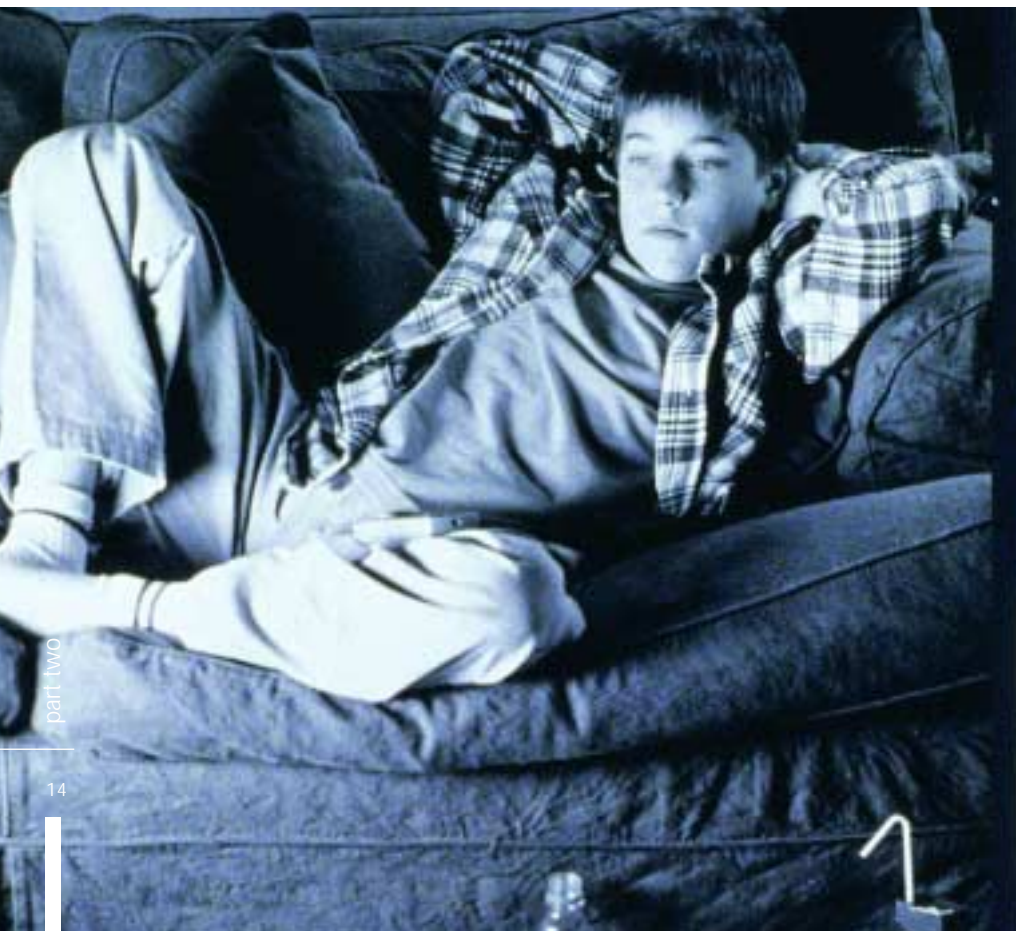
5 **Estimated increased risk for the obese of developing associated diseases, taken from international studies**

Disease	Relative risk - women	Relative risk - men
Type 2 Diabetes *	12.7	5.2
Hypertension	4.2	2.6
Myocardial Infarction	3.2	1.5
Cancer of the Colon	2.7	3.0
Angina	1.8	1.8
Gall Bladder Diseases	1.8	1.8
Ovarian Cancer	1.7	-
Osteoarthritis	1.4	1.9
Stroke	1.3	1.3

* Non-insulin dependent diabetes mellitus (NIDDM)

Note: The BMI range for the obese and non-obese groups used to estimate relative risk varies between studies, which limits the comparability of these data.

Source: National Audit Office estimates based on literature review (**Appendix 6**)



The links between obesity and mortality

2.18 In addition to increasing the risk of ill health, obesity significantly increases the risk of mortality at any given age¹⁰. One recent study has shown that the degree by which this risk is increased varies depending on physical fitness: an obese person with a low level of cardio-respiratory fitness has a higher mortality risk than an obese person who is otherwise physically fit¹⁹.

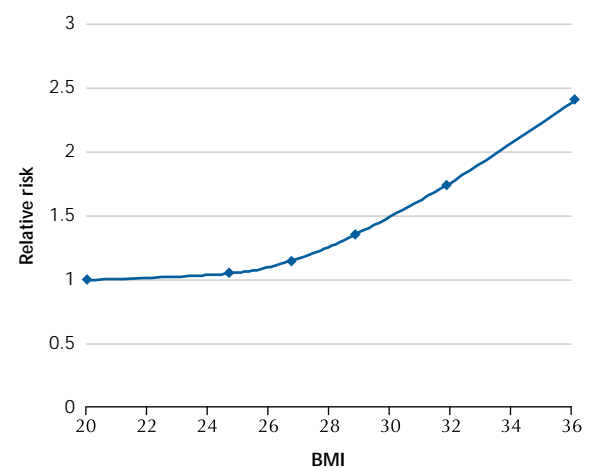
2.19 Evidence from studies suggests that for young adults in general the risk of mortality for someone with a BMI of 30 is about 50 per cent higher than that for someone with a healthy BMI (20 to 25), and with a BMI of 35 the risk is more than doubled (Figure 6). Whilst this relationship between relative mortality risk and increasing BMI is strongest until the age of about 50, the effect of overweight on mortality persists into the ninth decade of life¹⁰. There is also a link between mortality risk and the duration of overweight - those who have been overweight for the longest are at highest risk.

Obesity accounted for 18 million days of sickness absence and 40,000 lost years of working life in 1998

2.20 We estimate that in 1998 there were over 18 million days of medically certified sickness absence attributable to obesity and its consequences (Appendix 6). This figure is likely to be an underestimate. It excludes both self-certified and uncertified sickness absence, and takes no account of sickness due to diseases for which the

proportion of cases attributable to obesity cannot be quantified. Back pain associated with obesity is excluded, for example, as there are no data on relative risk on which to base estimates. Back pain is one of the most common causes of sickness absence and its inclusion could increase our estimate significantly.

6 The relationship between body weight, measured by BMI, and the relative risk of mortality



Note: This figure is based on data from a study of female nurses in the United States. Studies for all adults imply a similar relationship between BMI and risk of mortality in men.

Source: Manson J. E., Willet W. C., Stampfer M. J. (1995). "Bodyweight and mortality among women" - *New England Journal of Medicine*.



2.21 As a stated reason for sickness absence from work, 418,000 certified days were attributed directly to obesity in 1998. The remaining 17.6 million days of certified sickness absence from secondary diseases attributable to obesity are broken down at [Figure 7](#). The three biggest contributors were Type 2 diabetes, hypertension and angina, accounting together for three-quarters of days of sickness attributable to obesity in 1998.

7 **Estimated days of certified sickness absence from those cases of secondary diseases attributable to obesity in England in 1998**

Stated reason for work absence	Estimated days of certified sickness absence attributable to obesity (000)
Type 2 Diabetes	5,960
Hypertension	5,160
Angina Pectoris	2,390
Myocardial Infarction	1,230
Cancers*	970
Osteoarthritis	950
Gout	530
Stroke	440
Gallstones	20
Total	17,650

*Note: Endometrial cancer, colon cancer, rectal cancer, ovarian cancer and prostate cancer combined

Source: National Audit Office estimates based on data on claims for certified Incapacity Benefit supplied by the Department for Social Security (Appendix 6)

8 **The estimated direct costs of treating obesity and its consequences**

Cost component	Cost (£million)
Treating obesity	
General practitioner consultations	6.8
Ordinary admissions	1.3
Prescriptions	0.8
Outpatient attendances	0.5
Day cases	0.1
Total costs of treating obesity	9.5
Treating the consequences of obesity	
Prescriptions	247.2
Ordinary admissions	120.7
Outpatient attendances	51.9
General practitioner consultations	44.9
Day cases	5.2
Total costs of treating the consequences of obesity	469.9
Total Direct costs	479.4

Source: National Audit Office estimates (Appendix 6)

We estimate that over 30,000 deaths were attributable to obesity in 1998

2.22 In addition to the associated illness, we estimate that over 30,000 deaths in England were attributable to obesity in 1998, approximately six per cent of all deaths in that year. This compares to about 10 per cent of all deaths due to smoking, and less than one per cent from road accidents. In total, this amounted to 275,000 lost years of life - in other words, on average, each person whose death could be attributed to obesity lost nine years of life.

2.23 Some 9,000 of the deaths related to obesity occurred before state retirement age, resulting in a loss of over 40,000 years of working life by the time most people aim to have retired.

We estimate that obesity cost the National Health Service at least around £½ billion in 1998

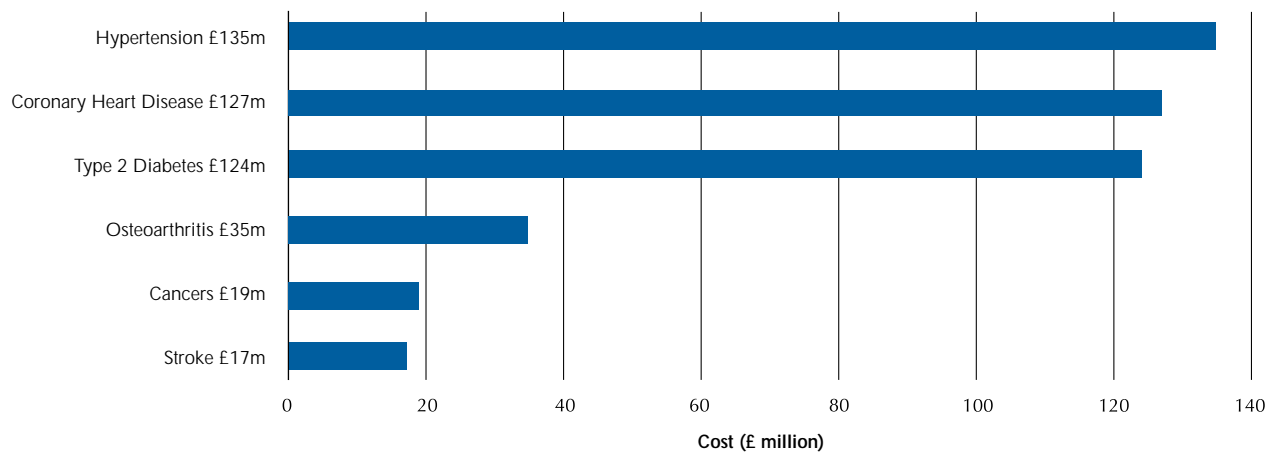
2.24 Illness associated with obesity gives rise to costs to the NHS. Direct costs of obesity arise from NHS consultations, drugs and treatments of diseases attributable to obesity. [Figure 8](#) sets out our estimates of these costs, amounting in England in 1998 to £480 million, or about 1.5 per cent of NHS expenditure in that year (Appendix 6). Of this total, the cost of treating obesity itself was £9.5 million, mainly driven by the cost of consultations with general practitioners. The bulk of the cost arose from treating conditions caused by obesity.

2.25 [Figure 9](#) provides an analysis of the direct NHS costs attributable to obesity by type of illness. The 'big three' cost drivers are hypertension, coronary heart disease, and Type 2 diabetes, which account for £386 million. Osteoarthritis and stroke account for a further £52 million of costs.

The direct costs of obesity are more likely to exceed than fall below our estimate of £½ billion a year

2.26 Our estimate of the costs of treating obesity and its consequences is low compared to the findings of studies undertaken overseas. International research estimates that, in countries where the prevalence of obesity is similar to that in England, the direct costs of obesity are between two and six per cent of national health care budgets²⁰. If this range applied in England, the direct costs to the NHS of treatment for obesity and its consequences would have been between £0.7 and £2.1 billion in 1998.

9 Breakdown of the estimated cost of treating the major secondary diseases attributable to obesity in 1998



Source: National Audit Office estimates (Appendix 6)

2.27 We have deliberately produced conservative estimates to raise their credibility as the basis of further discussion of this report in the face of a number of uncertainties (Appendix 6). For example, the potentially high costs associated with treating obesity related depression and hyper-lipidemia have been excluded because of inadequate data on relative risk. Even a small proportion of the cost of anti-depressants (£279 million per year) and lipid-regulating drugs (£190 million per year) would significantly increase our estimate of direct costs. The analysis also excludes other public expenditure not borne directly by the NHS, such as the costs of social care for obesity related stroke patients.

The indirect costs of obesity in England may be around £2 billion a year

2.28 The indirect costs of obesity are defined in terms of lost output in the economy due to sickness absence or death of workers. This involves making assumptions about how the economy responds when members of the workforce become sick or die. If it is assumed that the economy adjusts quickly, for example if job vacancies are filled rapidly following a death, ultimately from among the non-employed labour force, or if workforce productivity increases, then the impact on the economy is 'frictional' and small, in direct proportion to the speed of adjustment.

2.29 Modelling the macroeconomic impact on the economy of sickness and premature death among the obese in the necessary detail is not feasible. We have therefore made estimates on the basis of work time lost through sickness and premature death resulting from obesity, together with data on average incomes. This 'human capital' based approach is the standard one adopted in the literature (Appendix 6), but it is subject to large uncertainty and will give higher estimates than the friction cost method. These cannot be modelled other than by using a range of arbitrary assumptions.

2.30 Within these limitations, we estimate that the indirect costs of obesity in England in 1998 were £2.1 billion, of which £1.3 billion (61 per cent) was due to sickness absence attributable to obesity, and the remainder (£0.8 billion) due to premature mortality. Despite the uncertainties about the impact at the level of the whole economy, the human costs to *individuals* in terms of their illness and premature death are very substantial indeed.

On present trends, the costs of obesity could increase by a further £1 billion by 2010

2.31 Combining the estimates of direct and indirect costs, the total estimated cost of obesity in England in 1998 was £2.6 billion. If the prevalence of obesity continues to rise at the present rate until 2010, when it would approach the levels of obesity now seen in the United States, these annual costs would increase by £1 billion, or over a third, to around £3.6 billion, by that year.

Part 3

Management of obesity in the National Health Service

3.1 In this part we consider the roles and activities of the Department of Health and NHS bodies, at national and local level, which contribute to the twin objectives of treatment and prevention of obesity. We look at four distinct areas of activity:

- a) Action by the Department of Health and the NHS Executive;
- b) Local strategies to address obesity;
- c) Managing obesity in general practice; and
- d) Interventions elsewhere in the NHS.

a) Action by the Department of Health and the NHS Executive

3.2 Responsibility for policy on public health aspects of diet and nutrition and physical activity, including obesity, falls to the Department's Public Health Group. Appendix 7 provides details of policies and initiatives commissioned or supported by the Department of Health since 1997 which address aspects of obesity and the related areas of diet and physical activity.

3.3 Some of the key initiatives that demonstrate the importance attributed by the Department of Health to the prevention of obesity include the following:

- The NHS Plan⁷. This states the intention to tackle obesity and physical inactivity, informed by advice from the Health Development Agency. Action is planned over the next five years to improve diet, including by increasing fruit and vegetable consumption and reducing salt, fat and sugar intake;
- The National Service Framework for coronary heart disease⁶. This focuses on local action designed to prevent coronary heart disease, such as by promoting healthy eating and physical activity and reducing overweight and obesity;
- The annual Health Survey for England¹. This provides an important source of trend data on physical activity, eating habits, height, weight and body shape;

- Exercise referral schemes. These give patients who would benefit from increased physical activity access to a subsidised exercise programme through their general practitioner. The Department of Health plan to release guidance on 'General Practitioner Referral Frameworks' in 2001;
- Dissemination of the report 'Tackling Obesity- a Toolbox for Local Partnership Action', produced by the Faculty of Public Health Medicine of the Royal Colleges of Physicians²¹. This provides a framework for developing local action plans to prevent and control obesity. The Department paid for this report to be sent to all health authorities.

Central guidance on the management of obesity

3.4 There are no national guidelines for health authorities on the way in which their plans should address obesity. The most relevant guidance was published in March 2000 as part of the National Service Framework for coronary heart disease⁶. The Framework identifies the need for each health authority to develop, by April 2001, effective policies for promoting healthy eating and physical activity and reducing overweight and obesity, and by April 2002 to have in place arrangements for monitoring their implementation. The Health Development Agency has produced guidelines to support the Framework which cover interventions related to lifestyle issues such as physical activity, healthy eating and obesity prevention.

3.5 The National Service Framework also identifies the role of general practitioners and primary care teams in tackling overweight and obesity. It sets out a 10 year programme of action with a first priority of treating and advising those with established cardiovascular disease. A later stage will be to identify and treat those at high risk of developing cardiovascular disease, but who have yet to develop symptoms, and to offer appropriate advice and treatment to reduce their risks. The advice should include information about these risks and how they can be reduced as well as advice about physical activity, diet and weight management.

3.6 The main source of guidance to health care professionals and the NHS on the effectiveness of interventions to treat obesity was published in 1995 in an 'Effective Healthcare Bulletin' commissioned by the Department from the NHS Centre for Reviews and Dissemination at the University of York²².

b) Local strategies to address obesity

Over four fifths of health authorities had identified obesity as an issue in their Health Improvement Programmes as at April 1999

3.7 Health authorities are required to co-ordinate the development of Health Improvement Programmes for their local area, identifying local health priorities, and taking account of national strategic directions including National Service Frameworks²³. We undertook a survey of all 100 health authorities in England (Appendix 1) in the Summer of 1999 to identify to what extent they had addressed obesity in their plans. At the time of our survey, there were no milestones set centrally for the development of local policies for the reduction of overweight and obesity.

3.8 We found that a substantial majority of health authorities had included obesity, healthy eating or physical activity in their Health Improvement Programmes produced in April 1999. Eighty-three per cent identified obesity either as a risk to public health in its own right or as a risk factor for a specific disease area such as coronary heart disease or diabetes. The extent to which health authorities had developed and implemented relevant strategies, however, varied considerably.

Some health authorities have action in hand to address obesity

3.9 Whilst most health authorities had identified obesity as a health risk in their Health Improvement Programme, far fewer saw it as a priority area to be addressed through local action. In total, 32 health authorities (34 per cent of the 94 that responded) told us they had identified obesity as a local priority, of which 26 said that they had taken action to address it. Thirteen had put in place a dedicated strategy or action plan to prevent and treat obesity whilst, in the other 13, actions to address obesity had been incorporated into wider strategies to address associated diseases.

3.10 Of those health authorities without an obesity strategy, 14 were in the process of developing one. For those not doing so, this was most commonly because the health authority had more urgent priorities. About half of the health authorities without an obesity strategy told us that their plans addressed obesity implicitly by encouraging physical activity or healthy eating as part of coronary heart disease or cancer prevention programmes.

3.11 The expectation of the Department of Health is that the publication of the National Service Framework for coronary heart disease, coupled with the Health Development Agency's guidance on implementing preventive measures of proven effectiveness, will encourage all NHS providers and local authorities to develop such strategies by April 2001.

Some health authorities have developed local targets for the reduction of obesity

3.12 We found a number of examples of quantified and measurable targets directly addressing obesity, some of which were based on sub-regional baseline surveys carried out by the health authority to assess the extent of the problem. Most of these targets involved a significant reduction in the local prevalence of obesity, over a five to 10 year period, to well below national levels.

3.13 Target-setting demonstrates a commitment to take the issue of obesity seriously. However, there is a risk that, unless an obesity prevention strategy is already well-established, local targets to reduce the prevalence of obesity significantly in the medium term may be unrealistic, given the steeply rising trend throughout England. A more realistic five year aim might be to keep the local prevalence of obesity constant, which itself would require effective interventions in order to arrest the rising trend.

3.14 A few health authorities had developed local targets for increasing physical activity and improving diet. Some examples are provided in **Figure 10**. In the short term, targets that provide a direct measure of the effectiveness of interventions in influencing behaviour amongst the local population may be the most useful milestones to indicate progress towards halting the rise in the prevalence of overweight and obesity. Clearly, such targets must be both realistic and measurable if they are to have any benefit.

10 Examples of local targets for the promotion of physical activity and healthy diet set by individual health authorities

- Increase, by 30% by 2005, the numbers of people who have regularly walked continuously for a mile at a brisk pace
- The percentage of people eating a poor diet according to the criteria used in the Baseline Survey will be reduced from 29% to 25% by the year 2005
- 50 practice nurses will be trained in the dietary component of Helping People Change by the year 2000

c) Managing obesity in general practice

3.15 General practices are important in the management of overweight and obese persons as they are often the first port-of-call for persons seeking help. They are where most people, obese or not, come into contact with medical services⁸, and where there is the potential to tackle issues of being overweight or obese, possibly as part of a consultation not initially related to weight problems. Within the primary care setting, general practitioners may see patients, either directly because of overweight and obesity problems, or because of the associated illnesses, or indeed because of some condition not related at all to excess weight. Practice nurses, dietitians, health visitors and school nurses can also play a valuable role in identifying patients with weight problems and providing advice and support on weight control and lifestyle change in a more relaxed environment.

3.16 The first objective in the management of obesity is to prevent further weight gain²⁴. Once weight is stabilised, the second objective is to achieve some level of weight loss. Weight loss goals should be realistic and achievable. For many obese persons, achieving a body mass index in the ideal range and within a reasonable time is hard.

3.17 This does not imply a counsel of desperation. A weight loss of 5kg (11 lbs) is equivalent to a loss of some six per cent in body weight for a man or woman of average height with a body mass index of 30, on the boundary between the overweight and obese categories. This degree of weight loss can reduce back and joint pain, breathlessness, and the frequency of sleep apnoea, and improve lung function²⁴. It may also result in psychological benefits, such as the alleviation of depression and anxiety²⁵.

3.18 A report by the Royal College of Physicians in 1998²⁵ lists the following potential benefits that can accrue from a slightly greater weight reduction of 10 per cent from an initial weight of 100kg in those patients with associated diseases:

- a substantial fall in systolic and diastolic blood pressure;
- a fall of 10% in total cholesterol;
- a greater than 50% reduction in the risk of developing diabetes;
- a 30-40% fall in diabetes related deaths;
- a 40-50% fall in obesity related cancer deaths;
- a 20-25% fall in total mortality.

3.19 We surveyed a sample of 1,200 general practitioners and 1,200 practice nurses, stratified to be representative of the range of general practitioners in England, using a postal questionnaire (Appendix 1). We also visited 20 general practitioners and 16 practice nurses to carry out face-to-face interviews. The responses showed that management of obesity within general practice consists broadly of three types, depending on the degree of obesity and the extent of clinical complications. In ascending order of intervention, these are:

- i) general advice within the surgery, and personal advice on weight control, diet and physical exercise aimed at influencing lifestyle;
- ii) personal advice on weight loss and lifestyle change supported by drug therapy prescribed by the general practitioner; or
- iii) onward referral by the general practitioner to a weight loss specialist, possibly involving drug therapy and, in extreme cases, surgery.

i) Managing obesity in general practice: general advice, screening and personal advice

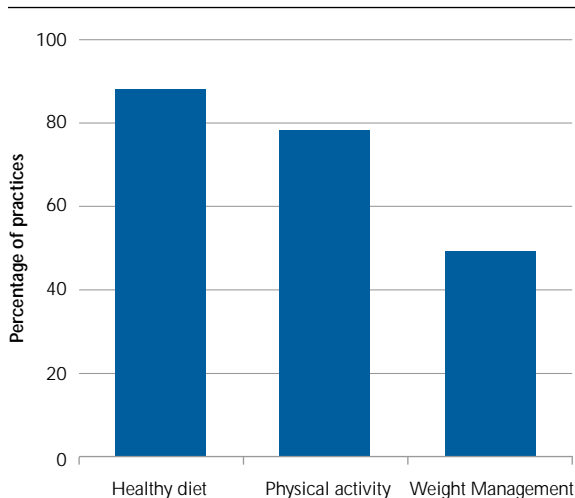
3.20 Advice on weight control, diet and physical exercise provided by the general practitioner or practice nurse is the most common approach in primary care. This may include:

- advice on how to modify diet and lifestyle in order to build in more physical activity;
- the provision of specialised diets and diet plans;
- referral to exercise programmes, such as through exercise on prescription (paragraphs 3.35-3.39 below); and
- ongoing support, including goal-setting and weight monitoring.

The majority of practices promote healthy eating and physical activity through general information

- 3.21 Our survey indicated that over three quarters of practices made general information on healthy diet and physical activity available to all patients who visited the surgery, normally in the form of a waiting room display or leaflets available in the waiting room. Approximately half provided general information in this way to educate patients specifically about the issue of weight management (Figure 11).
- 3.22 A small minority of practices - around seven per cent of those that responded - had not in the last year provided any general information in the surgery to promote healthy eating, physical activity or weight management. Patients attending these surgeries, not necessarily for weight problems, would therefore only receive important messages about healthy eating, exercise and weight control should they be raised in the course of a consultation with the general practitioner or practice nurse.
- 3.23 Whilst many general practices take the opportunity to promote healthy lifestyles through the provision of such material, little is known about the effectiveness of this approach. None of the general practitioners or practice nurses we interviewed had evaluated the extent to which such material was used by patients or its impact on lifestyle. However, given the rate at which the prevalence of obesity is increasing in England, there may be benefits for all general practices, rather than around half as at present, to make information available to all patients on the risks of obesity and how to manage one's weight.

11 Percentage of practices that made general information on diet, physical activity and weight management available to all patients



Source: National Audit Office based on responses to postal survey (Appendix 1)

Many general practitioners seek to identify those patients at risk of obesity, but not the majority

- 3.24 General practitioners are in a position to assess which patients might benefit from advice or treatment to help them manage their weight. These patients might be identified based on an already elevated body mass index or waist measurement, lifestyle factors that might put them at high risk of weight gain, or the risk of associated diseases such as coronary heart disease, diabetes or hypertension. In March 2000, the National Service Framework for coronary heart disease was published⁶, which includes plans for general practitioners and primary care teams to identify all people at risk of cardiovascular disease, including because of their weight, and to offer them appropriate advice and treatment to reduce their risks.
- 3.25 At the time of our survey (which pre-dated the National Service Framework), we found that almost all practices recorded the height and weight of all patients. In addition, about 95 per cent recorded the body mass index of all patients. A small minority took a more proactive approach to identifying those patients at risk by recording other indicators of body fat: around four per cent recorded waist circumference, and three per cent recorded waist:hip ratio.
- 3.26 However, only 40 per cent of general practitioners told us that they attempted to identify those patients at highest risk of excessive weight gain. They looked for risk factors such as a high or rising body mass index, family history or associated health risks such as diabetes or heart problems.

Most general practices accept a responsibility for treating obesity or referring patients to appropriate specialists

- 3.27 General practitioners decide whether to treat patients who would benefit from weight loss personally, or whether to refer them on to appropriate specialists. Two thirds of general practitioners in our survey felt that treating patients for excess weight or obesity was the responsibility of the primary care team. A greater proportion - three quarters - thought they had a role in referring obese persons to appropriate specialists for treatment. However, a small number of general practitioners (two per cent) neither treated obese patients personally to help them achieve weight loss, nor referred them to specialists.

3.28 Views on who should be responsible for promoting healthy lifestyles in general showed a similar picture. Some 60 per cent of general practitioners said that promoting a healthy lifestyle was the role of the primary care team as a whole, while 30 per cent thought that promoting healthy lifestyles was the role of health authorities or the Government. The National Service Framework for coronary heart disease⁶ clarifies the important role of general practitioners and primary care teams, as well as Primary Care Groups and Trusts, for implementing effective preventive policies in the future.

The 'whole practice' approach

3.29 In practices that accept responsibility for the management of obesity, it is often handled on a team basis, comprising the general practitioner, the practice nurse and possibly a dietitian. Many practice nurses and practice-based dietitians run weight management clinics to monitor patients' progress whilst at the same time helping them to remain motivated and reinforcing advice on diet and exercise to promote effective weight control.

3.30 When managing their overweight and obese patients, 70 per cent of general practitioners told us they always involved other members of the practice or did so for more than half of their patients. Almost all involved the practice nurse, while just over half also involved a practice dietitian. Our interviews confirmed that there are advantages to the 'whole practice' approach that could usefully be obtained more widely, particularly by involving practice nurses in the management of people with weight problems:

- some patients listen better to the nurse than to the doctor;
- practice nurses are better at doing things that should be done regularly, such as monitoring patients' weight;
- the practice nurse has more time to do follow-up.

3.31 The National Service Framework for coronary heart disease⁶ also emphasises the important role of the broader primary care team, including health visitors, school nurses and other health professionals working in the community, in developing and implementing strategies to reduce overweight and obesity and improve patterns of diet and physical activity.

General practitioners and practice nurses provide a range of advice and monitoring for obese patients

3.32 General practitioners and practice nurses respond to the problem of obesity mainly through regular weight monitoring and the provision of advice on diet or physical activity (Figure 12).

3.33 Almost all practices that treat obese patients provide them with personal oral advice. In most cases, this is combined with written advice to take away from the surgery to use as the basis for changes in lifestyle. Practice nurses played a greater role in providing lifestyle advice, particularly written advice, than general practitioners. The written material supplied to patients on diet and physical activity came from a variety of sources, including custom-made advice prepared by the general practitioner or practice nurse, and leaflets published by the Health Education Authority, health charities, and food manufacturers.

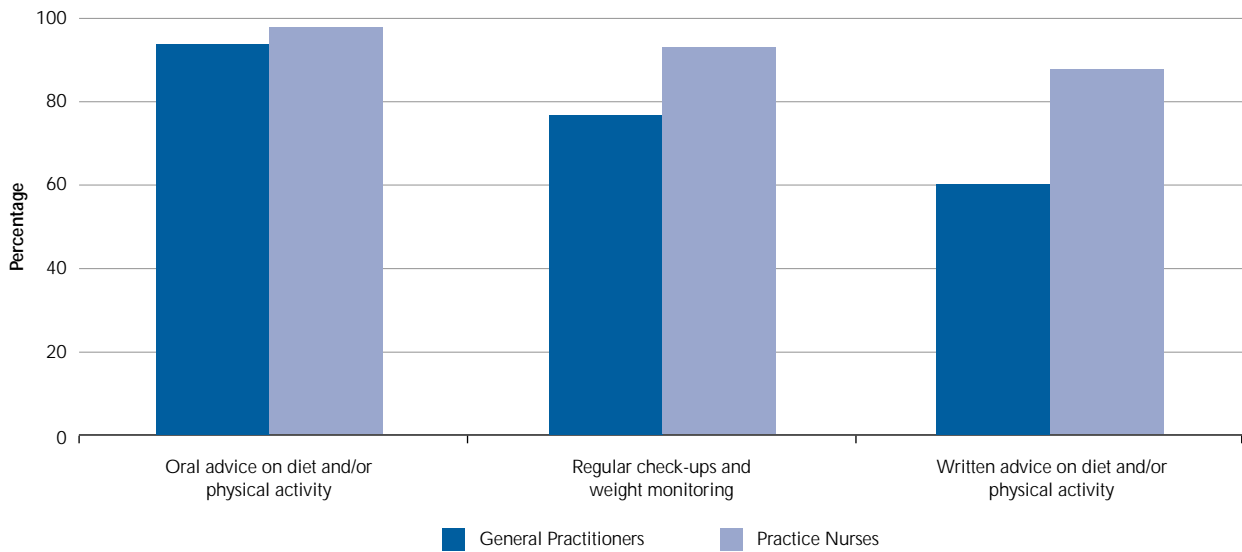


3.34 Regular checks on people with weight problems can provide patients with an incentive to keep their weight down between consultations, and ensure that associated problems are kept under review and action taken to prevent or treat them. Where surgeries treat obesity, almost all practice nurses provide monitoring services, as do many general practitioners.

Well-designed exercise on prescription is a practical way of achieving health benefits for obese individuals, but more evaluation is needed

3.35 Exercise on prescription is an initiative that allows general practitioners to refer patients for free or subsidised exercise programmes under the supervision of a qualified trainer. Our survey indicated that 14 per cent of general practitioners and 33 per cent of practice nurses referred patients to a trained exercise specialist or specific exercise programme.

12 Most commonly used interventions for treating overweight and obese patients in primary care



Source: National Audit Office based on responses to postal survey (Appendix 1)

3.36 The exercise model used varies from scheme to scheme. **Case Study 1** shows how a well-designed scheme, incorporating rigorous pre-programme assessment, progress monitoring and follow-up, can help patients to lose weight and improve fitness.

3.37 The largest evaluation of exercise on prescription schemes in England was undertaken by the Health Education Authority in 1998²⁶. This review estimated that there were over 200 referral-based exercise schemes in operation in England. The evaluation included a systematic review of empirical data relating to the effectiveness of schemes and three case studies of existing schemes.

3.38 The Health Education Authority found some evidence of improvements to physical activity patterns. They also noted, from case studies, wider impacts from the schemes, including social and psychological benefits for participants. However, there was a wide variety in the type and quality of exercise programmes provided. None of the programmes employed an accepted model for helping people to achieve lifestyle change, and many were not the most appropriate for helping people with weight problems. The Health Education Authority concluded that such schemes should include more rigorous evaluation, which would involve systematic gathering of quality data using carefully chosen outcome measures to provide better evidence on effectiveness.

3.39 In June 2000, the Department of Health announced plans to publish new guidelines to help general practitioners to start such schemes for their patients. To do this, they have commissioned experts in physical activity and health to produce a National Quality Assurance Framework for Exercise Referral Systems. The framework will provide guidelines for best practice

within the whole referral process, from selection of patients to exercise programming, evaluation and long term follow-up. The aim is to improve the quality of physical training provided, thus maximising the benefits to patients, and to establish indicators to demonstrate how closely the guidelines are being followed.

General practice offers a range of innovative but untested help

3.40 Some practices provided other forms of help, including slimming groups and exercise programmes at the practice, and in a very few cases offered alternative therapies such as yoga, meditation or hypnosis. Two examples of innovative practice are illustrated below in **Case Study 2**. Although these examples have not been independently audited for either clinical or economic cost effectiveness, evidence from self-evaluations suggests that they may be promising developments.

There is uncertainty about what comprises effective intervention for obesity

3.41 Our survey found widespread uncertainty amongst general practitioners about the effectiveness of the different interventions at their disposal. Their views reflected general uncertainty about which interventions are effective in preventing and treating obesity. Seventy-three per cent of general practitioners believed there was a lack of proven, effective interventions available to assist them in determining the most appropriate treatment pathway for their patients. And 64 per cent believed the range of treatments available to them was of little or no effectiveness. Practices told us, both in our visits and in responses to our postal questionnaire, that they would like more information on what were the most effective ways to help obese patients lose weight.

Case Study 1: Exercise on Prescription Scheme in North West England

In partnership with North West Lancashire Health Authority and Preston Borough Council, two leisure centres in Preston have set up an exercise on prescription scheme they call "Exercise Your Options". There are over 20 practices enrolled in the scheme, and both general practitioners and practice nurses from those practices can refer patients.

Prior to referring patients, the general practitioner carries out a health check, recording height, weight, blood pressure and resting pulse. The patient is then referred to a LifeStyle Fitness Officer who carries out a health screening and fitness assessment. The LifeStyle Fitness Officer will then tailor an exercise programme to meet the patient's needs and level of fitness.

After four to five weeks a mid-programme check is made by the general practitioner or practice nurse. At the end of the eight week programme the LifeStyle Fitness Officer will re-test the patient and the results will be discussed with the general practitioner. If the programme has been satisfactorily completed, a further four weeks of free exercise is available. After 12 weeks patients may be re-prescribed exercise if the programme has proved beneficial.

The programme is free to patients. To ensure commitment of the patients, a "contract" is signed by both the patient and the prescribing general practitioner or practice nurse.

The scheme is evaluated yearly. Since 1995, when the scheme was initiated, over 2,000 patients have been referred. Forty-three per cent of these patients completed the programme. Of the 779 patients who provided follow-up data, 58% experienced a decrease in weight, and 94% showed a decrease in body fat.

Source: National Audit Office survey of general practice

Case Study 2: Innovative approaches to the management of excess weight



The Surgery Gym

A general practice in Saltash in Cornwall has set up a gymnasium at the surgery for the use of patients and the wider community over the age of 14. The gym is open during surgery hours and is staffed on a part time basis by a qualified fitness instructor. It was set up by the general practitioner using private funds and savings from the drug incentive scheme. The surgery charges a £10 induction fee and £2 per week for an unlimited number of visits, with all profits reinvested in the gym. The gym is small, but is equipped with commercial quality equipment and can take three to four persons per hour, who book in advance to use the facilities. While the surgery has not done a formal audit of gym use, it is often fully booked and they estimate that 150 patients, 10% of their patient list, and many more non-patients use the gym.

Source: National Audit Office survey of general practice



The Health Walks Project

One surgery has organised a Health Walks Project to increase significantly the fitness and well-being of an entire community, using the resources of the local environment. The philosophy underpinning the project is that walking in the local environment is the most basic form of exercise, involving no special equipment, no cost and is available to all. Walking routes are mapped, and group walks are graded to encourage all levels to participate.

Patients who would benefit most from increased activity are encouraged to participate - those who are sedentary, or those with chronic health conditions, such as coronary heart disease risk factors.

The surgery also offers organised group cycle rides on a twice weekly basis and provides maps of local cycle routes.

Evaluation of the project found that 61 per cent of those using Health Walks reported that they were more likely to walk short distances as a result of the project. The project was developed with the support of the Countryside Commission and the British Heart Foundation.

Source: Active Transport⁶⁷

ii) Managing obesity in general practice: drug therapy

3.42 Drug therapy may be used in tandem with a calorie-restricted diet to accelerate weight loss in obese patients²⁵. Health concerns led to the withdrawal in 1997 of fenfluramine type anti-obesity drugs, but a new generation of anti-obesity drugs is now emerging, beginning with Orlistat, which was licensed in Europe in 1998. A necessary condition for prescribing this drug is that the person concerned has been able to lose weight without using the drug, as an indicator of motivation and the ability to adhere to a calorie-restricted diet.

Many general practitioners are uncertain about the appropriateness and effectiveness of drug therapy

3.43 Drug therapy was used by two fifths of general practitioners responding to our survey, and by nine of the 20 general practitioners we interviewed.

3.44 None of those interviewed had had more than a few patients taking weight-loss drugs at any one time. Their attitudes to the use of drug therapy varied. Most felt it was a useful aid in accelerating weight loss for a minority of patients, but they had some reservations. In particular, concerns were expressed about how to assess which patients were sufficiently motivated to benefit from therapy, and the likelihood of weight regain when the drug therapy was terminated.

3.45 Since we began our study, the National Institute for Clinical Excellence (NICE) has announced that part of its programme in 2000-01 will be to examine the clinical and cost effectiveness of the anti-obesity drugs, Orlistat and Sibutramine. NICE are expected to issue guidance on the use of Orlistat in February 2001. This will help ensure that general practitioners are better informed about the costs and potential benefits of drug therapy for their obese patients.

iii) Managing obesity in general practice: onward referral

3.46 The specialist expertise often necessary in the treatment of obese patients is normally found outside general practice. The six most commonly used options for referral of patients are shown in **Figure 13**. The option most frequently used was referral to a state-registered dietitian, though long waiting lists were mentioned by some as a problem.

3.47 Not all of these options are available to all NHS patients. About a quarter of general practitioners felt that the range of referral options at their disposal was limited or inadequate. Access to suitable treatments for obesity can depend on factors such as the prosperity of the patient and geographical location. For example, patients

referred to private sector slimming groups do not receive financial assistance in meeting the costs of attendance, which may preclude this option for many. And not all general practitioners have local access to a physician specialising in weight problems, a suitable community-based programme, or a surgical consultant able to advise on the suitability of surgery to achieve weight loss.

There is uncertainty about the effectiveness of referral options

3.48 General practitioners identified a range of factors that would assist them in referring patients more efficiently and effectively, particularly better information about proven, effective interventions (**Figure 14**).

Overcoming knowledge constraints in the management of obesity

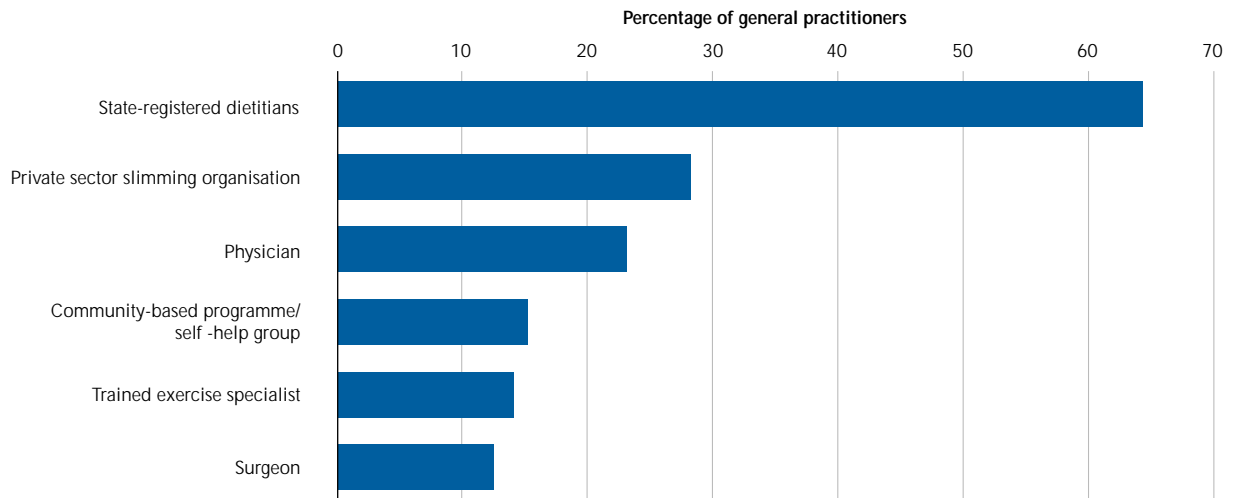
3.49 Our survey asked general practitioners and practice nurses what factors might help them in developing further their approach in the treatment of overweight and obese patients. **Figure 15** shows their most frequent responses. Action is in hand to address some of these issues, particularly access to exercise regimes.

Obesity protocols are not widely used in primary care and need further development

3.50 We asked whether or not national clinical guidelines or a protocol for managing overweight and obese patients would be a useful tool. Sixty-three per cent of general practitioners and 85 per cent of practice nurses believed that such guidelines would be "useful" or "very useful". However, a minority of the general practitioners and practice nurses we interviewed suggested that they preferred more flexibility to recognise individual patients' needs. This demonstrates that any clinical guidelines that might be developed need to contain sufficient flexibility to allow general practitioners to exercise a degree of judgement over the most appropriate course of treatment for each patient.

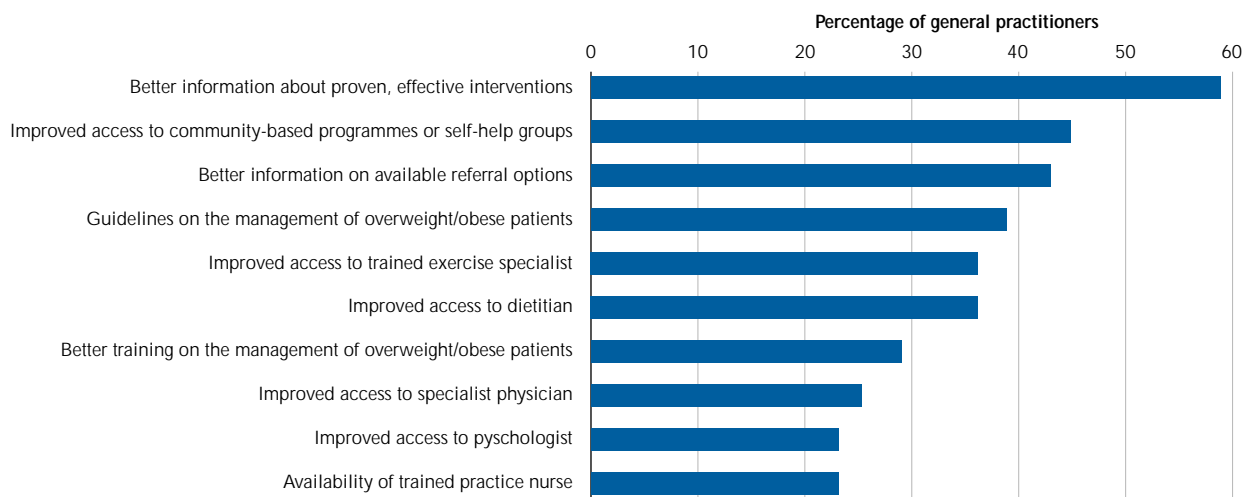
3.51 There are two main sets of guidelines currently available in Britain, and used by some general practitioners in England, that are relevant to the management of obesity in general practice. In Scotland, 'Obesity in Scotland: Integrating Prevention with Weight Management', was published by the Scottish Intercollegiate Guidelines Network in 1996, and updated in 1997²⁴. And in 1998, the Royal College of Physicians of London published 'Clinical Management of Overweight and Obese Patients, with particular reference to the use of drugs'²⁵.

13 Referral options most commonly used by general practitioners



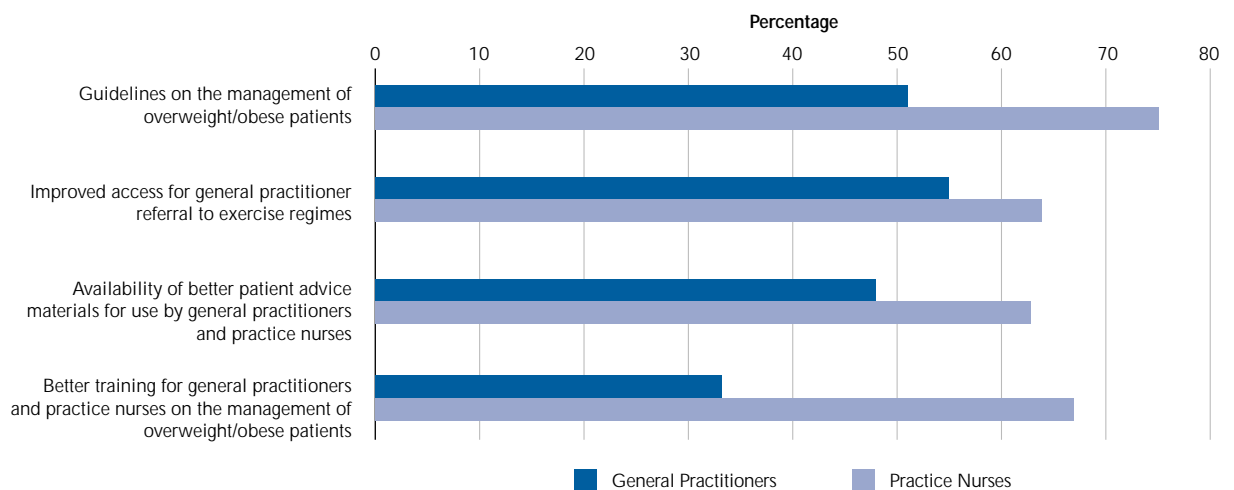
Source: National Audit Office based on responses to postal survey (Appendix 1)

14 Factors which general practitioners said would assist them in referring patients



Source: National Audit Office based on responses to postal survey (Appendix 1)

15 Factors which general practitioners and practice nurses said would assist them in advising and treating patients



Source: National Audit Office based on responses to postal survey (Appendix 1)



3.52 We found that very few general practitioners used the protocols proposed in either of these guidelines. Indeed, only four per cent of general practitioners used a protocol for managing overweight or obese patients, and many of those in use had been developed independently by the practice.

3.53 We assessed the potential usefulness of 35 protocols provided by practices against four criteria developed in consultation with members of our expert panel. We examined whether the protocol:

- had a clearly expressed aim or objective;
- defined which patients to target for advice or treatment;
- identified clear treatment and referral criteria;
- had a timetable and instructions for review and follow-up.

3.54 Three of the 35 protocols satisfied all the criteria, and a further 16 satisfied at least two. The majority had no timetable or instructions for review and follow-up, and half did not have clear treatment and referral criteria. Improvement and standardisation of protocols by building on best practice offers the scope to produce better outcomes for obese patients.

3.55 From our survey of health authorities, we found two examples of guidance for primary care teams on when to refer overweight and obese patients to a dietitian, one of which had been developed by a health authority (West Sussex Health Authority), the other by an NHS community trust (North Mersey Community NHS Trust). Such guidance informs local general practitioners about the service offered, to ensure consistent management of patients, and to make the best use of dietetic resources provided in the local community.

3.56 Our analysis indicates that, even where some form of protocol was in use, it rarely constituted a comprehensive framework for the management of obese patients and those at risk of obesity. And none of the protocols in use had been independently evaluated to establish its effectiveness. In the absence of such information, general practitioners and practice nurses do not have clearly defined criteria for the management and treatment of overweight and obese patients, and there is no guarantee that patients, even within the same surgery, will obtain consistent and effective treatment.

There is a clear view as to what guidance should cover

3.57 We asked the general practitioners and practice nurses we interviewed what they would like to see included in a national protocol or guidelines on obesity, if one were developed. All said that they would like guidance which covered the topics set out in [Figure 16](#).

16 Topics suggested by general practitioners and practice nurses for inclusion in guidance on the management of overweight and obesity in primary care

Topics for inclusion in guidance

- a definition of which patients to target for advice and treatment
- guidance on how to assess current physical activity and the advice to be given to people on a weight maintenance programme
- a protocol for deciding the most appropriate treatment pathway for each patient
- information on effective interventions in primary care for weight maintenance and increased physical activity
- a protocol for deciding the most appropriate referral option for each patient
- guidance on the development of care plans to meet the needs of individuals on a weight maintenance programme
- dietary recommendations for those patients to be placed on a weight management programme
- guidance on the appropriate intervals between consultations for monitoring of treatment and follow-up
- protocols for follow-up weight maintenance
- guidance on setting up registers for overweight and obese patients
- case examples of good practice

Source: National Audit Office interviews (Appendix 1)

d) Interventions elsewhere in the National Health Service

3.58 Hospitals and specialist clinics provide other settings to identify persons at risk of becoming overweight or obese and for obese persons to seek help. There is, however, very little obesity-related activity within the NHS at the secondary and tertiary care level.

Hospital admissions provide an opportunity to undertake screening for obesity

3.59 The link between obesity and associated diseases such as coronary heart disease and Type 2 diabetes means that hospital admissions provide an opportunity, additional to screening undertaken in general practices, to identify patients who would benefit from treatment for obesity. Whilst it is common practice for hospitals to assess risk factors that might be contributing to the condition for which the patient has been admitted, such as obesity, arrangements need to be made to follow this up through referral for appropriate treatment after discharge from hospital.

3.60 There are already examples of good practice here. For example, Stockport Acute Services NHS Trust has set up a patient screening programme for pre-operative patients, whereby obese patients are identified and referred to their general practitioner if it is felt they would benefit from advice and treatment (**Case Study 3**).

Specialist centres for the treatment of obesity may be a cost effective way to address the rising prevalence and associated ill health

3.61 An unpublished survey carried out by the NHS Clinical Obesity Group in May 1998 identified 12 obesity clinics in England, eight of which were run by physicians and four by surgeons. Additionally, there were four physicians and 28 surgeons in England seeing patients for their obesity outside obesity clinics.

3.62 Surgery to promote weight loss normally involves placing physical constrictions on the opening of the stomach, or reducing the size of the stomach. It is used rarely, and there are probably no more than 200 operations performed in England each year on the most severe cases of obesity²⁸, many of them funded privately. Surgery is normally an effective way of producing weight loss, but places major limitations on what the patient may eat. This can be hard for patients to tolerate and in some cases results in further surgery to reverse the procedure. There is also some risk that surgery will lead to clinical complications, including nutritional deficiencies¹⁰.

Case Study 3: Screening at Stockport Acute NHS Trust

Under the screening programme all patients, when admitted for a pre-operative assessment, are requested to complete a health education questionnaire with the assistance of a nurse. The questionnaire covers basic statistical data and lifestyle related issues including height, weight, body mass index, and eating and physical activity habits. One purpose of the questionnaire is to help patients stay healthy after their operation. The questionnaire is analysed and appropriate referral suggestions are made. For example, if there is an indication of inappropriate eating habits or a sedentary lifestyle, combined with a high body mass index, the patient will be referred to their general practitioner for advice and treatment.

Source: National Audit Office site visit

3.63 Specialist obesity clinics use a combination of interventions to achieve weight loss, normally including a very low calorie diet and drug therapy, in some cases with input from a psychologist. The majority of clinics are highly constrained by resources and thus the number of patients they can treat. For example, a typical physician-led clinic in London operated on one half day per week, seeing between six and eight new patients each time, while another in Bedfordshire opened for one half day per fortnight, admitting three new patients each time. The physicians leading these clinics told us that the waiting list for admitting patients was long, often in excess of six months. They were therefore only able to admit the minority of patients who could demonstrate

a very strong motivation to make changes to their lifestyle in order to lose weight. **Case Study 4** provides an example of the type of treatment offered within a specialist obesity clinic.

3.64 Specialist centres can play a potentially important role in the management of obesity for those patients who have sufficient motivation to benefit. However, there is only limited evidence of their effectiveness. Self-evaluations undertaken by physicians operating obesity clinics suggest that they are effective in helping most patients to achieve medically significant weight loss, but that this is rarely sustained in the long term³⁰.

Case Study 4: Inside an obesity clinic

The clinic is offered as part of acute medical services through the general medical clinics of diabetes and endocrinology and is staffed by a consultant physician, a clinical psychologist and a senior dietitian. It is held fortnightly.

Patients are referred by their general practitioner. Potential patients are sent a detailed questionnaire and returned questionnaires are analysed. If the analysis suggests that the patient suffers from a significant lack of motivation or readiness for lifestyle change or a significant eating disorder, the patient is directed back to their referring general practitioner and no appointment is offered.

The consultant physician assesses those patients selected for treatment on their first visit. They will then see the psychologist and dietitian. A joint decision is made as to an appropriate treatment plan. The treatment options are:

- a group behaviour modification and low calorie liquid diet programme, the programme about half the clinic patients follow;
- dietetic-led management, used with most patients with uncomplicated obesity, which involves three or more appointments with the dietitian followed by an appointment with the doctor;
- medically-led management, which involves a series of three appointments with the doctor and one appointment with the dietitian, and is offered to approximately 20% of the patients, in particular those with obesity-related medical complications;
- clinical psychology assessment, where patients attend two or three appointments to explore their suitability for other treatment options at the clinic. Less than five per cent of patients require long term psychological intervention and are referred to the psychology services offered by the local Community Health team;
- pharmacological intervention, where patients are prescribed a course of anti-obesity drugs;
- referral to other units for surgical intervention, an option offered to less than one per cent of patients when appropriate;
- recruitment into clinical research programmes where appropriate.

An evaluation of the low calorie liquid diet programme undertaken by the clinic in 1998 found that on average patients lost 12 per cent of their body weight during the course of the programme. It was difficult to draw conclusions about long term effectiveness, however, as of the 91 patients who completed the programme, only nine returned for follow-up 18 months later.

Source: National Audit Office site visit and self-evaluation report by the clinic⁹

Part 4

Initiatives across Government to address the problem of obesity

- 4.1 Part 2 of this report demonstrates the considerable burden of disease and wider costs to society that result from a high prevalence of obesity in the population. These costs will continue to increase unless action is taken to prevent the prevalence of obesity from rising further. As shown in Part 3, treatment to help obese people control their weight can significantly reduce the risks of associated disease and improve the quality of life of those affected. However, as for other chronic conditions, treatment of people who are already obese can only have a marginal effect on population-wide prevalence, particularly as only a minority of obese patients who enter treatment achieve and sustain a BMI below 30 in the long term. To address prevalence, there is a need to focus more on those who are at risk but not yet obese. Prevention targeted at children and young people is a key component to the success of such a strategy.
- 4.2 There is a wide range of organisations and groups, both within and outside the public sector, that have an important influence on the elements of lifestyle - principally diet and physical activity - which affect body weight (Figure 17). The Department of Health can have little impact acting in isolation, and joined up approaches are required. The role of the Department involves liaising with the key representatives of other Government departments in order to advise on policies and initiatives to improve health, in particular in relation to diet and nutrition, health education, transport and physical recreation.
- 4.3 In this part of our report we examine preventive initiatives. We look at how far common objectives relevant to prevention of obesity have been adopted and addressed through joined up working. To do this we have identified themes where there is the potential for a joined up approach, and examined the actions taken and outputs achieved. There is limited evidence on the effectiveness of interventions, but we have used case studies to illustrate what is possible and as an aid to spreading good practice.

There is a substantial amount of joined up working across Government related to the prevention of obesity

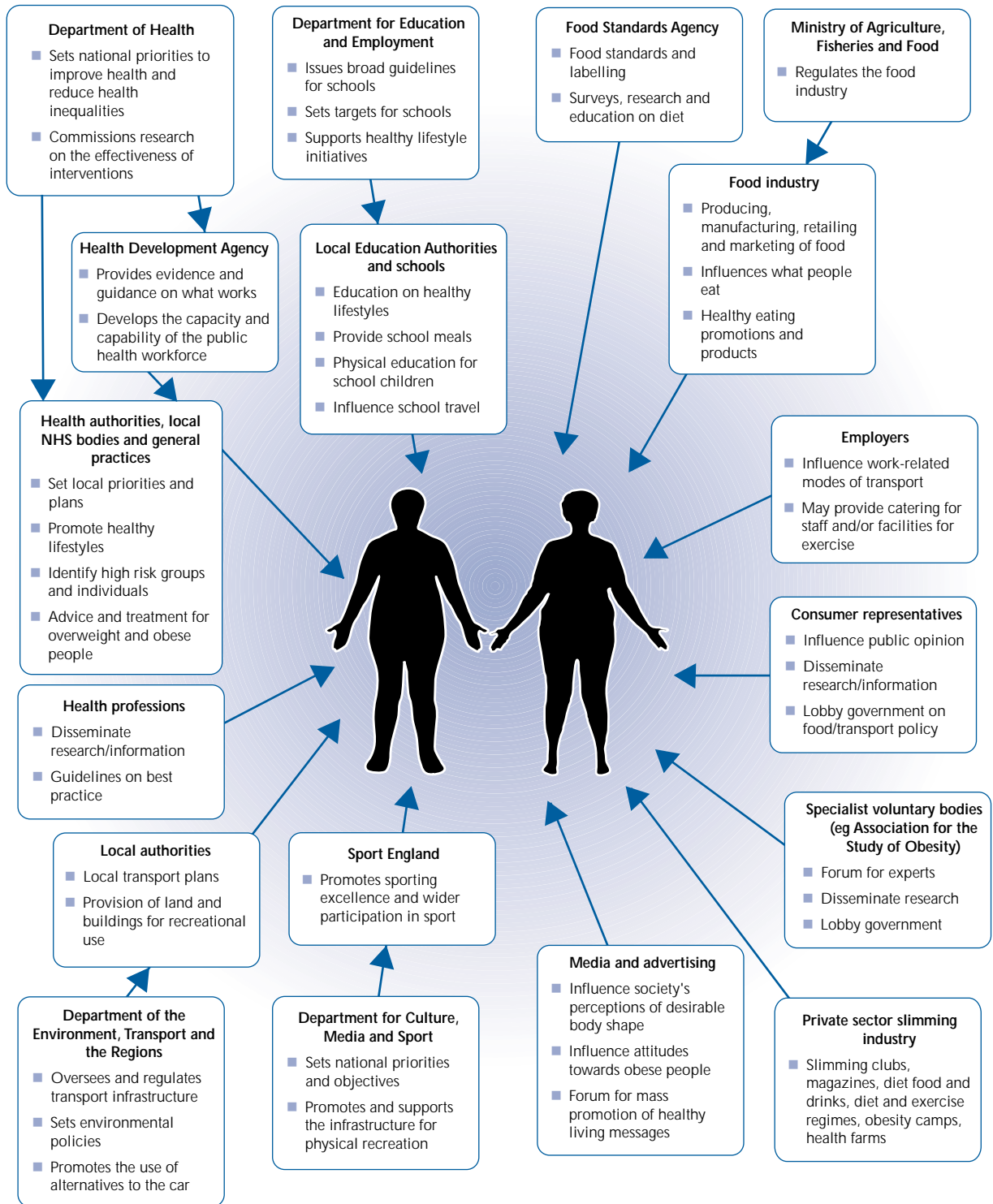
- 4.4 We interviewed staff in the relevant Government departments (Appendix 1) to establish the main mechanisms they used for working together, how effective collaboration had been, and what the key outputs were in terms of jointly-sponsored research, projects and initiatives. We also sought examples of local initiatives and joint working, involving organisations such as local authorities, health authorities, schools, and local providers of health and social services, which demonstrated this cross-cutting approach.
- 4.5 Overall, we found a substantial amount of co-operative and cross-departmental work related to obesity. We look at these activities in paragraphs 4.6-4.64 below under a number of themes, firstly those addressing the population as a whole:
- i) promoting active transport;
 - ii) promoting more active recreation in society; and
 - iii) identifying and promoting healthy patterns of eating.

And secondly, those targeting children and young people:

- iv) equipping young people for a healthy lifestyle;
- v) promoting a healthy school environment;
- vi) promoting healthy travel to school;
- vii) promoting sport and physical recreation in schools; and
- viii) promoting healthy eating in schools.

We looked in particular for evidence of the main categories of cross-cutting intervention identified in the Cabinet Office report, 'Wiring it up' (2000)³¹.

17 Public and private sector stakeholders with the potential to influence lifestyle and bodyweight



Note: This figure shows only the roles of stakeholders that impact on lifestyle and, therefore, may influence bodyweight. It is not intended to represent the full range of their objectives or activities.

Source: National Audit Office

Initiatives addressing the population as a whole

i. Promoting active transport

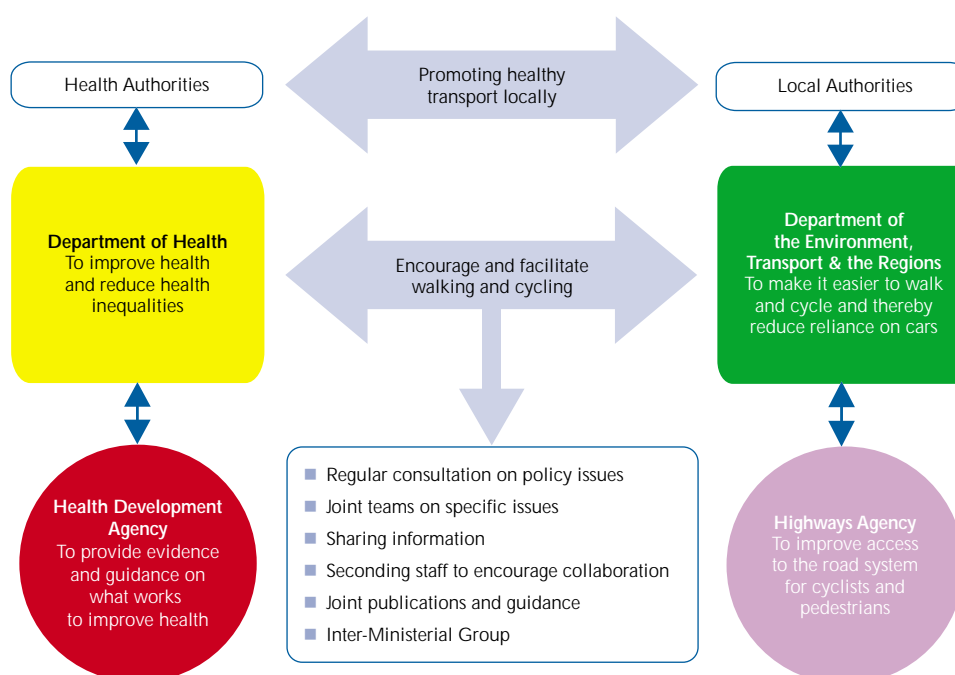
The Department of the Environment, Transport and the Regions works with the Department of Health and other agencies

- 4.6 Government can encourage people to take more physical activity by enabling them to build it into their daily routines, principally through active forms of transport such as walking and cycling. The 'New Deal for Transport' White Paper, published in July 1998³², acknowledged the impact of different modes of travel on the nation's health, and on the risk factors for coronary heart disease in particular. It signalled the Government's intention to make it easier for people to stay fitter through walking and cycling by providing a safer and more integrated network of appropriate routes, footpaths and cycle lanes. There is clear congruence between the Department of the Environment, Transport and the Regions' objective to make it easier to walk and cycle and thereby reduce reliance on cars, and the Department of Health's objective to promote physical activity to reduce ill health.
- 4.7 To support these shared policy objectives, there is regular formal and informal consultation between staff working in relevant areas of each department, backed up by joint teams and working groups on specific issues, such as school travel (paragraphs 4.41-4.45). The departments have also jointly sponsored research on integrating health and transport policy at the local level, and commissioned joint publications. In addition, both departments are

represented on the Inter-Ministerial Group to Improve Children's Diet and Activity, set up in July 2000. Some of the key ways in which the two departments have worked together are illustrated in **Figure 18**.

- 4.8 The Department of the Environment, Transport and the Regions has consulted with colleagues from the Department of Health on issues including the transport White Paper, national cycle forum, and the walking working group. These links were maintained in developing the 'Are you doing your bit?' campaign, a national, multi-media initiative to encourage the public to make differences to their lifestyles that will help the environment. The re-launch of the campaign in 1999 sought to promote healthy transport choices by encouraging people to reconsider their use of the private car and adopt healthier modes of transport such as cycling and walking. These themes continue to be part of the campaign in its 2000/01 phase.
- 4.9 Work to promote this message was led by a physical activity expert seconded from the Health Education Authority to the Department of the Environment, Transport and the Regions specifically to develop stronger links between transport and health policy. This secondment helped to ensure consistency with the central messages of the Health Education Authority's 'Active for Life' campaign, which ran concurrently and was the main initiative to promote physical activity commissioned by the Department of Health. This physical activity expert is now providing consultancy advice to both departments on exploring ways to integrate health and transport and other physical activity policies.

18 The links between health and transport



Source: National Audit Office

Performance targets for healthy transport

- 4.10 The policy commitment is supported within the Department of the Environment, Transport and the Regions by a target to quadruple the level of cycling, against a 1996 base, by the year 2012.
- 4.11 At the operational level, the Highways Agency, with responsibility for motorways and trunk roads, has an objective to improve conditions on the roads for cyclists, pedestrians and equestrians. Whilst the Agency has not set a quantified performance target for access for cyclists, its management plan includes operational targets for four accessibility schemes costing over £100,000, and a further 15 costing under £100,000. Setting a strategic performance target to measure its success in delivering accessibility would provide the Agency with a further incentive to work closely with the Department of the Environment, Transport and the Regions to improve access and safety for cyclists.

Integrating health and transport plans locally

- 4.12 Health authorities and local authorities provide the main links in translating Government policy on health, transport and the environment into local action: health authorities are responsible for identifying the health needs of the local population and for seeking to address them through co-ordinating the local Health Improvement Programme; and local authorities make the planning decisions which affect the local environment and transport infrastructure. Joint working on these issues at departmental level needs to be mirrored by collaboration at the local level to develop and implement integrated health and transport strategies.
- 4.13 To develop these links, the Department of the Environment, Transport and the Regions and the Department of Health jointly sponsored a report called 'Making The Links: Integrating Sustainable Transport, Health and Environmental Policies', published in 1999 by the Health Education Authority³³. The report aimed to promote joint working between local authorities and health authorities by identifying common themes in national transport, health and environmental policies, by providing guidance on the development of integrated strategies, and by disseminating good practice. [Case Study 5](#) illustrates what can be done.

- 4.14 Local Transport Plans will provide an opportunity to apply this integrated approach more widely. They were introduced by the 'New Deal for Transport' White Paper³² as a centre piece for local action and key to the delivery of integrated transport. They are five-year plans on which local authorities are required to consult widely, including with health care providers. Some local authorities have set their own targets to increase cycling, in line with the Department of the Environment, Transport and the Regions' national objective, and are working with local user groups to achieve them.
- 4.15 In developing their policies on walking and cycling, a number of local authorities have designated 'Walking' and 'Cycling' Officers in order to develop plans and implement schemes on the ground. Walking and cycling are also being promoted through Green Transport Plans, which were introduced by the 'New Deal for Transport' White Paper as a means of delivering changes in travel modes to and during the course of work. Through such plans, employers are encouraged to promote the use of walking and cycling by offering incentives and providing the equipment and facilities to make these more attractive options. As part of the National Service Framework for coronary heart disease⁶, NHS and local authority employers are required to develop Green Transport Plans by April 2002.
- 4.16 As a sister publication to 'Making The Links', the Health Education Authority published a further report in 1999 called 'Active Transport'²⁷, designed to help professionals working at community level to develop local initiatives to promote walking and cycling. This is a practical document which makes extensive use of case studies to disseminate good practice in developing healthy transport initiatives. Some examples from the report are described in [Case Studies 6, 7 and 8](#).

ii. Promoting more active recreation in society

- 4.17 Another way in which Government can encourage more people to take more exercise is by promoting physical recreation. The Department for Culture, Media and Sport has a lead role in promoting participation in sport and in ensuring that adequate opportunities for active leisure and play are provided for the whole population, including the socially disadvantaged. The Department's Public Service Agreement with the Treasury published in 2000 includes a strategic objective to raise significantly, year on year, the average time spent on sport and physical activity by those aged 5 to 16.

Case Study 5: Integrated health and transport strategies in Liverpool



Liverpool Health Authority identified action areas on "transport, air, planning and land use" in its Health Improvement Programme (1999). These included:

- The health impact assessment of new transport plans
- Implementing a cycle users' programme
- Developing a targeted and cohesive transport strategy, linked to the cycling strategy
- Incorporating health and sustainability into local planning guidance
- Reducing the amount of long-stay car parking and promoting the health benefits of the car parking strategy
- Securing organisational commitment for implementing green commuter plans, including incentives to use public transport and walking.

Merseyside local authority's transport strategy had a section devoted to transport and health, and a health impact assessment of the regional transport strategy was conducted. Projects included:

- Healthy transport plans at NHS sites
- Green commuter plans for NHS staff and links to "health at work" programmes
- A TravelWise regional campaign, with transport/health promotions
- Cycling and walking route development and promotion, linked to physical activity programmes
- "Safer routes to school" and links to children's health.

Source: *Making The Links*³³

Case Study 6: Health promotion by encouraging the use of stairs

A study was undertaken by researchers at Glasgow University and Glasgow Health Board to encourage the use of stairs rather than an escalator at a city centre underground station. The aim was to test whether incidental physical activity could be incorporated into the daily routines of members of the public.

Posters with the slogan "Stay Healthy, Save Time, Use the Stairs" were placed in prominent positions at the point of choice where an escalator and two flights of fifteen steps ran side by side.

Prior to the erection of the posters, stair use was around eight per cent. During the three week period when the sign was present, stair use went up to between 15-17 per cent. Twelve weeks after the removal of the posters, stair use remained significantly above the level recorded prior to the erection of the posters. The Health Education Board for Scotland subsequently distributed motivational stair walking posters throughout Scottish workplaces.

Source: *Active Transport*²⁷

Case Study 7: Promoting Walking and Cycling in Stockport



A unique NHS project has been established in Stockport to promote walking and cycling throughout the borough. A Project Officer is employed to promote walking and cycling as part of every day living.

A range of programmes has been established including adult cycling classes, a resource pack to support school talks, a cycling festival and a cycle leasing scheme which encourages NHS Trust staff to cycle to work. This scheme enables staff to rent one of 85 bicycles purchased by the Trust. It aims to increase fitness and activity levels among staff, as well as alleviate parking problems at hospital sites.

The scheme has proved to be extremely popular, with far more staff cycling to work than previously as all the bikes have been rented out. It is part of a broader sustainable transport plan produced by the local Transport Working Group- an alliance between Stockport NHS and Stockport Metropolitan Borough Council.

Source: *Active Transport*²⁷

Case Study 8: British Aerospace

British Aerospace (Bristol) employs over 5,000 people on a vast site that accommodates offices, manufacturing facilities and a research centre. To promote cycling among staff British Aerospace has invested in showers, changing facilities and additional bike parking.

The company Bicycle User Group reports that currently 10 per cent of staff cycle to work but the numbers are increasing as the improvement programme unfolds. The company also sponsors a public Project Bike helpline for general cycle route advice, and in 1998 sponsored the Bristol Bike Festival.

Source: *Active Transport*²⁷

- 4.18 Much of this activity takes place through the funding provided by the Department to organisations such as Sport England and the Central Council of Physical Recreation, who themselves fund local providers such as local authorities and sports clubs. Within its funding agreement with the Department for Culture, Media and Sport, for example, Sport England has objectives to involve more people in sport and to increase the number of places in which sport is played. The agreement places particular emphasis on increasing participation amongst young people.
- 4.19 These aims fit with the Department of Health's objective to improve health by encouraging more people to take more physical activity. Although there has been relatively little formalised joint working between the Department of Health and the Department for Culture, Media and Sport to date, there is frequent ad hoc working level contact to discuss issues and projects of

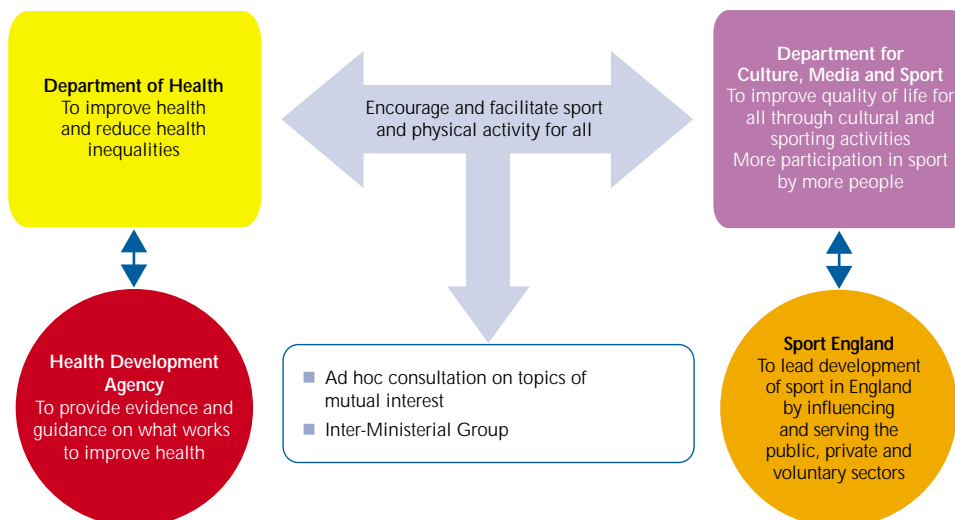
mutual interest and to ensure consistent approaches (Figure 19). More formalised joint working relationships are now being established, in particular through the Inter-Ministerial Group to Improve Children's Diet and Activity, set up in July 2000. In addition, Sport England has employed for the first time a consultant to advise them on improving integration with the health sector.

- 4.20 Much of the joint working to increase participation in sport, particularly amongst socially disadvantaged groups, is centred around school-based activities in designated Sports Action Zones. More detail on the establishment of these zones and related initiatives is provided at paragraphs 4.51-4.52.

iii. Identifying and promoting healthy patterns of eating

- 4.21 Encouraging healthy eating is a key component in trying to address the rising prevalence of obesity. It is also an important part of the Department of Health's strategy to improve health and reduce health inequalities by addressing priority disease areas, in particular coronary heart disease and cancers. The Ministry of Agriculture, Fisheries and Food and, since April 2000, the Food Standards Agency, play an important role in ensuring the adequate provision of safe and healthy foods, helping to educate the public about diet and encouraging healthy eating. The Ministry has a high level objective "To safeguard the continuing availability to the consumer of adequate supplies of wholesome, varied and reasonably priced food and drink".
- 4.22 The creation of the Food Standards Agency in April 2000 explicitly acknowledged the links between health and diet. The Agency brought together former policy staff on aspects of nutrition from the Department of Health and the Ministry of Agriculture, Fisheries and Food, and is

19 The links between health and physical recreation



Source: *National Audit Office*

accountable to Health Ministers. The Agency has no specific objective to address the effect of diet on weight gain or obesity, though the following objectives of the Agency are relevant to encouraging healthy eating:

- to define a healthy diet (in other words, the ranges of dietary intakes which minimise the risk of adverse effects including nutrient deficiencies) and to put this in the context of other lifestyle factors such as exercise;
- to ensure that information provided to consumers about the food they buy is accurate, adequate and not misleading; and
- to secure the greatest possible level of consumer choice and value for money.

4.23 The core activities of the Agency include:

- commissioning research into human nutrition and the factors that affect food choice;
- providing up-to-date educational material and advice on healthy eating for health professionals and the public;
- maintaining and disseminating information on the nutrient composition of food;
- monitoring the diet and nutritional status of people; and

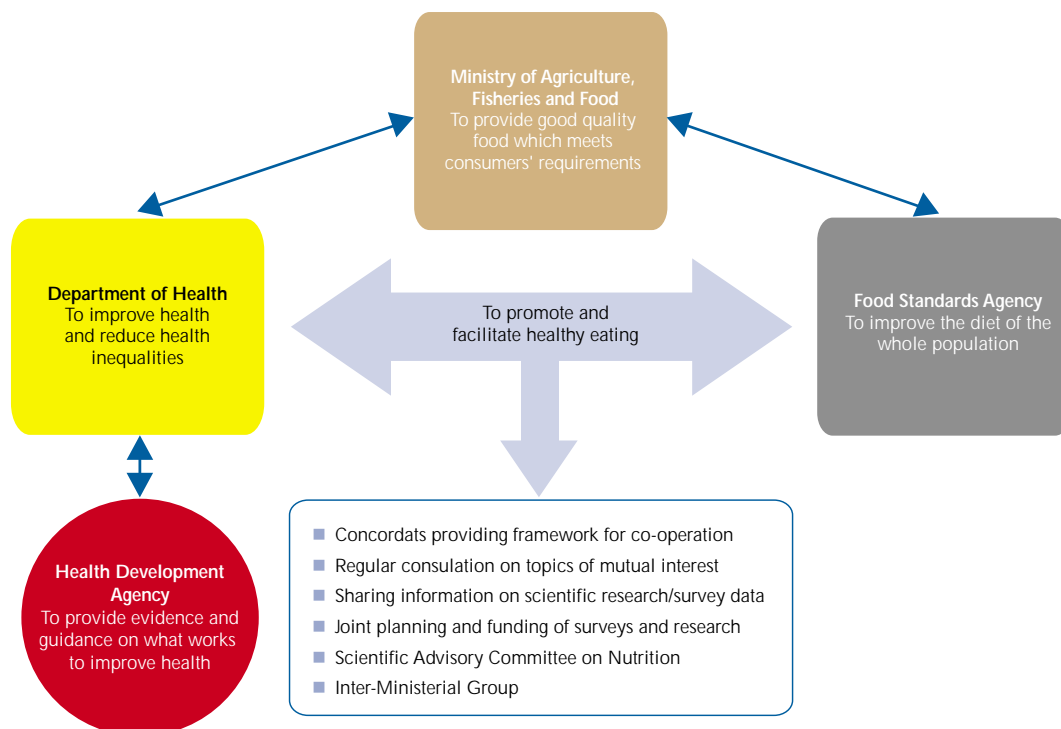
- encouraging innovation and diversity in the range of foods available, backed up by clear and informative labelling to enable consumers to make properly informed choices.

4.24 **Figure 20** shows the main ways in which the Department of Health and the Food Standards Agency work together to identify and promote healthy eating patterns.

4.25 Prior to the establishment of the Food Standards Agency, the Ministry of Agriculture, Fisheries and Food was already active in pursuing research topics related to the issue of obesity and its prevention. A strategic review of research undertaken in 1996 identified the desirability of the Department of Health establishing a cross-cutting group to co-ordinate research on obesity.

4.26 The Food Standards Agency now works closely with the Department of Health to commission research on nutrition and the effects of diet on health. Research that might inform both food and health policy is also considered by the Diet and Health Research Funders Group, which meets annually to discuss research programmes, exchange information and explore linkages and possible overlaps. The group includes representatives of the Department of Health, the Food Standards Agency and the related Research Councils.

20 The links between health and diet



Source: National Audit Office

- 4.27 The National Diet and Nutrition Survey is a programme of cross-sectional surveys to assess the diet and nutritional status of different age groups within the population of Great Britain. The Food Standards Agency and the Department of Health work together to design, commission and manage the surveys to ensure that the results support the implementation and monitoring of nutrition policy. The surveys are funded jointly by the Agency and the Department.
- 4.28 The Department of Health's Nutrition Research programme is funding a number of projects relevant to obesity:
- a systematic review of the characteristics of children who become obese adults;
 - the development of a family based intervention to prevent obesity in a high risk group;
 - the extent to which energy and fat consumption can be estimated from supermarket receipts; and
 - a longitudinal analysis of child and adolescent predictors of adult obesity based on the 1958 birth cohort.
- 4.29 The Food Standards Agency, in consultation with the Department of Health, is also sponsoring research into food acceptability and choice, aiming to encourage a shift away from fatty foods and towards a greater consumption of starchy foods and fruit and vegetables.

4.30 The 'Balance of Good Health' plate is a diagrammatic representation of the types and proportions of foods that make up a healthy, balanced diet. This model depicts Government advice on healthy eating in the form of foods rather than in terms of nutrients. The Food Standards Agency is considering plans for further dissemination of the model.

4.31 In July 2000, the Department of Health announced as part of the NHS Plan⁷ proposals to improve diet and nutrition by a series of measures by 2004 including:

- a five-a-day programme to increase fruit and vegetable consumption, and a new national school fruit scheme;
- reform of the welfare foods programme to ensure children in poverty have access to a healthy diet, and increased support for breast feeding;
- a hospital nutrition policy to improve the outcome of care for patients;
- work with industry- including producers as well as retailers- to increase provision and access to fruit and vegetables with local initiatives, where necessary, to establish local food co-operatives; and
- initiatives with the food industry- including manufacturers and caterers- to improve the overall balance of diet including salt, fat and sugar in food, working with the Food Standards Agency.

21 The Balance of Good Health



Source: Food Standards Agency

Initiatives targeting children and young people

iv. Equipping young people for a healthy lifestyle

4.32 For most people, the values, perceptions and patterns of behaviour that are formed during childhood and adolescence are an important influence on their lifestyle in adulthood. Moreover, levels of fatness seem to be increasing amongst schoolchildren³⁴, and the National Diet and Nutrition Survey, published in 2000¹⁸, gives cause for concern about children's diets, nutritional status and physical activity levels. Young people therefore need an understanding both of the risks that obesity poses to health, and of the ways to maintain a healthy weight.

4.33 The Department for Education and Employment is a major player at central Government level in encouraging the education of young people in the benefits of a healthy lifestyle, including the benefits of physical activity and a healthy diet. The Department also has a role in ensuring that a healthy environment is provided in schools: in particular that schools offer nutritious lunches, such as by providing fruit and vegetables and avoiding an excess of foods with a high fat, salt or sugar content; and that they provide opportunities and encouragement for physical activity. These aims fall within the Department's general objective to ensure that all young people reach 16 with the skills, attitudes and personal qualities that will give them a secure foundation for lifelong learning, work and citizenship in a rapidly changing world. They are also congruent with the Department of Health's objective to encourage people to live healthily.

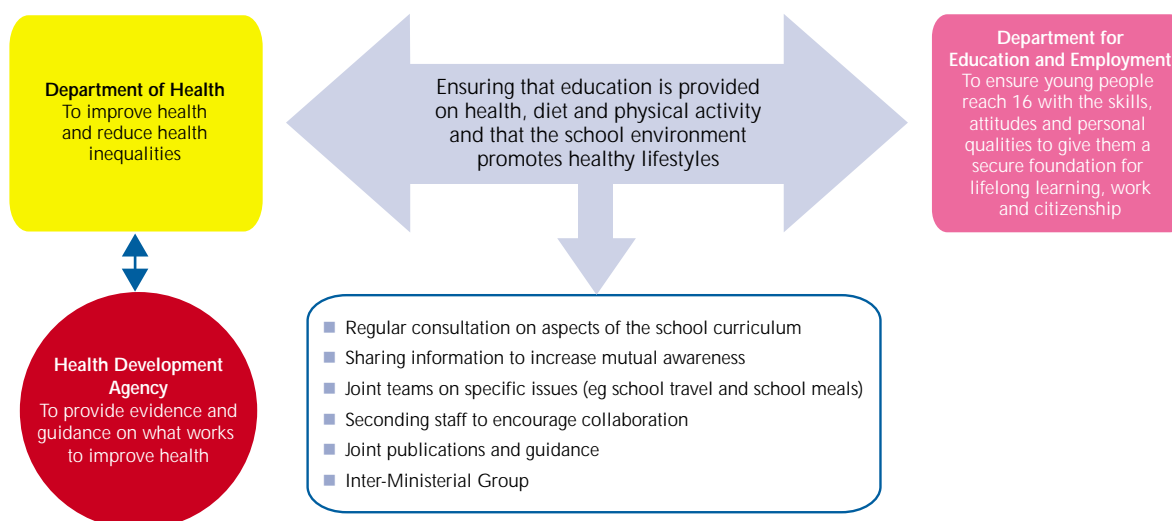
4.34 **Figure 22** illustrates where the policy objectives of the two departments intersect in relation to diet and physical activity, and shows which type of cross-cutting intervention they have used.

4.35 The Department of Health and the Department for Education and Employment consult one another to work towards achieving these mutual objectives. This involves:

- high level consultation on policy issues, such as when a White Paper or draft legislation is prepared;
- ongoing liaison at a working level over relevant aspects of the school curriculum, in particular before any changes are made;
- staff secondments or loans to raise mutual awareness and encourage collaboration. This includes the long-standing arrangement in which the Department of Health has provided a member of medical staff to contribute to policy and services, and advise the Department for Education and Employment on aspects of the education system where a knowledge of health issues and policy is needed; and
- detailed liaison, including through setting up joint teams and working groups, to consider specific issues. For example, the recent development of nutrition standards for school meals necessitated almost daily informal contact at a working level over a period of several months.

4.36 The Department for Education and Employment told us that there were four main areas of the curriculum where children have the opportunity to acquire the knowledge and skills that will help them to live healthily: personal, social and health education; physical education; nutrition; and food technology. We examine physical education, nutrition and food technology at paragraphs 4.46-4.64 overleaf.

22 The links between health and education



Source: National Audit Office

4.37 The objective of personal, social and health education is to provide a foundation for the personal development of young people in preparing them for adult life. This subject became part of the core curriculum for the first time in September 2000. In developing this subject, the curriculum division within the Department for Education and Employment liaised with the Department of Health, in part through the Medical Advisor, to define the necessary elements that would provide a balanced coverage of health issues. As regards obesity, the personal, social and health education curriculum includes coverage of the components, such as diet and exercise, that constitute a healthy lifestyle, and of the health risks associated with a body weight which is above or below the healthy range. **Case Study 9** provides an example of the benefits of personal, social and health education in schools.

v. Promoting a healthy school environment

4.38 Beyond the formal curriculum, the Department for Education and Employment also has a role in ensuring that the environment in schools reinforces health education messages by encouraging appropriate extra-curricular activities and promoting healthy living.

4.39 The Department for Education and Employment and the Department of Health have worked closely to promote good practice. In May 1998, Ministers from the two departments jointly launched the Healthy Schools Programme, designed to encourage and promote healthy lifestyles through the school culture and environment. They announced a commitment to work across Government, the private and voluntary sectors, and with local agencies and communities, to help schools become healthier schools through supporting the development and improvement of local programmes.

Case study 9: Personal, Social and Health Education across the curriculum - Chapel Break First School

At Chapel Break First School in Norfolk, a central plank of its strategy to become a Healthy School was to build its personal, social and health education into other curriculum areas. The reception class worked on a different health-related topic each term, including "me and looking after my body".

Over four years in which it worked towards the Healthy Norfolk Schools Award (achieved in 1998), the school's academic results steadily improved. In Science, it attained the highest grading compared with equivalent primary schools nationally. Teachers felt the boost in results, particularly Science, was thanks to integrating health issues into the curriculum.

Source: *National Healthy School Standard: Getting Started - A Guide for Schools*³⁵

4.40 A key part of the Healthy Schools Programme is the National Healthy School Standard, which was launched in October 1999 to offer support for local programme co-ordinators and provide an accreditation process for education and health partnerships. The Standard, managed by the Health Development Agency, has been disseminated to schools, local authorities and health authorities through guidance^{35,36}, which provides examples of good practice. Key components of the Standard are to encourage physical activity, through school travel and physical recreation, and healthy eating.

vi. Promoting healthy travel to school

4.41 The number of children walking or cycling to school has declined dramatically over the last two decades. In the mid-1980s, two thirds of children aged between 5 and 10 years walked to school, and more than six per cent of 11-16 year-olds cycled to school. By the late 1990s, this had fallen to just over half of children (5-10 years) walking to school, and less than two per cent of pupils (11-16 years) cycling³⁷.

4.42 The Department of Health, the Department for Education and Employment and the Department of the Environment, Transport and the Regions have worked together to promote healthy school travel. **Figure 23** illustrates the intersecting policy responsibilities of these departments for school travel, and the key initiatives that have emerged from their collaboration.

4.43 As a central forum for debate and joint working between the departments, the School Travel Advisory Group was set up in 1998, including representatives of the health, transport and education sectors. The Group includes the three key Government departments and a wide range of stakeholders from local Government, voluntary and private organisations. In 1999, the Group reported to Ministers on a range of measures intended to improve safety on the journey to and from school, provide a variety of healthier travel choices and encourage more youngsters to walk, cycle or take public transport.

4.44 In 1999, the three departments worked together to commission the Transport 2000 Trust to produce guidance on school travel, entitled 'A Safer Journey to School'³⁸. This guidance advises local authorities, schools and parents on building a safe environment for pupils to walk and cycle or take public transport to school, including measures to calm road traffic, enhance footpaths and cycle lanes, and provide facilities for the storage of bicycles and accessories.

4.45 A further incentive for schools is that promoting safe and healthy school travel can also be a key component in achieving accreditation under the National Healthy School Standard developed by the Department of Health and the Department for Education and Employment. At primary school level, this is backed up by a training guide helping trainee teachers to teach children about physically active modes of travel as part of the primary school curriculum. To

offer financial support, the departments also launched the 'Safe and Sound Challenge' in January 1999, with a second phase announced in December 2000 to focus on initiatives in Education Action Zones. This scheme encourages schools to develop ideas for safe travel to school using alternatives to the car by offering cash prizes for the most innovative ideas. **Case Studies 10 and 11** illustrate the type of action that can be taken.

Case Study 10: The walking bus at Wheatfields Junior School



The walking bus is an organised walking group led by adults. Parents wait at a series of "bus stops" for trained volunteers to escort their children to school. The scheme has a conductor who supervises the children and a driver who wheels a trolley carrying the children's bags. Each route is between ½ and 1 mile long.

Children who use this route to school are rewarded by vouchers or stickers they can use to trade for free goods from the school bookshop.

Source: *School Travel: Strategies and Plans - a Best Practice Guide for Local Authorities*³⁹

Case Study 11: Llwynu Primary School Cycling Club, Abergavenny

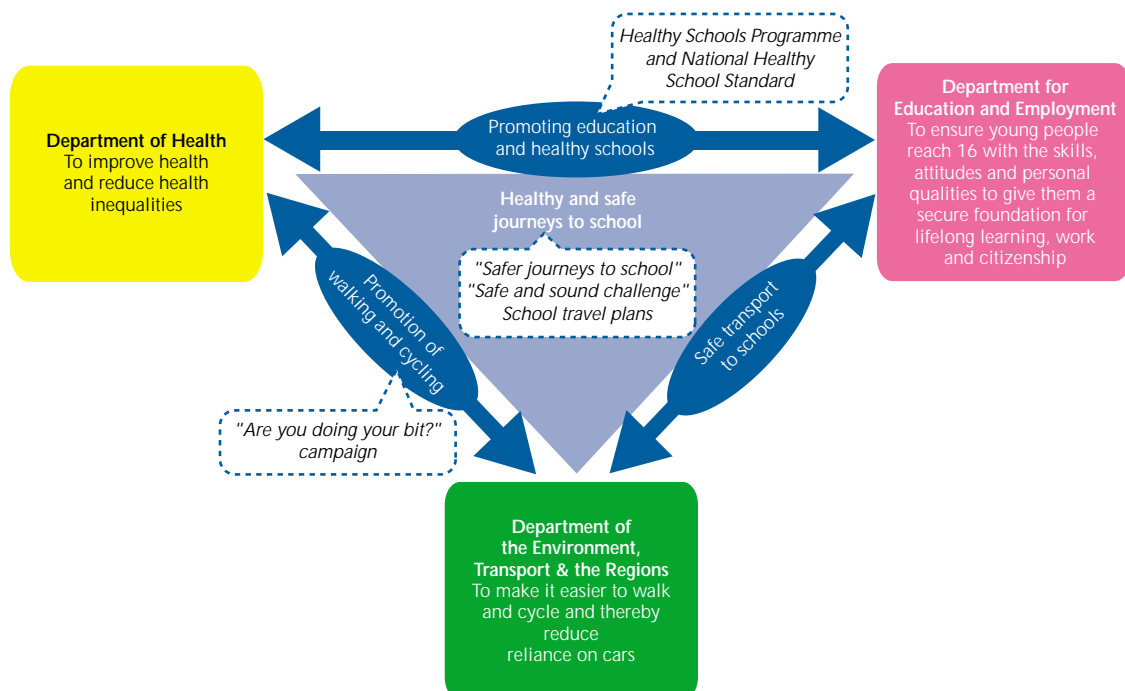
Llwynu primary school is situated a mile from Abergavenny town centre. The Cycling Club at the school was established by two members of staff in 1998. The primary aim was to encourage fitness and independence, to help the environment through reducing car trips, and to address aspects of cycle proficiency. Staff report that the pupils greatly enjoy the cycle proficiency sessions, parents are positive about the Club and it is hoped that the training will help with cycling skills and encourage a culture of cycling among the pupils.

Source: *Active Transport*²⁷

vii. Promoting sport and physical recreation in schools

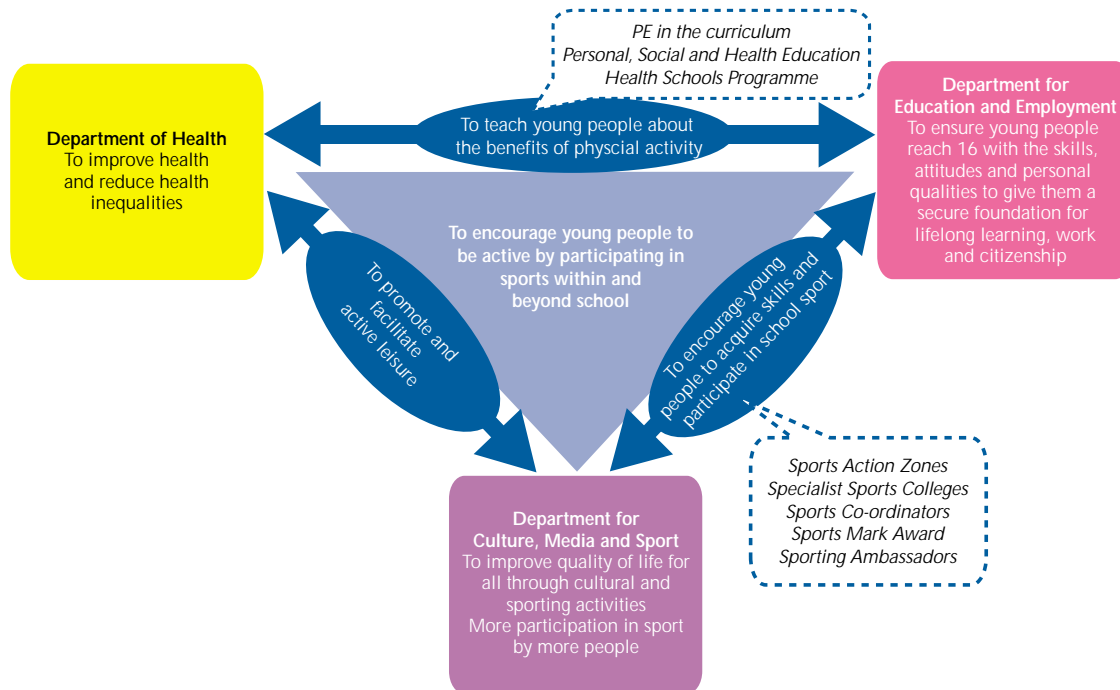
4.46 Providing opportunities and encouragement for sport in schools can help make young people more active and provide them with the skills and motivation to remain physically active into their adult lives. Here the policy responsibilities of the Department of Health, the Department for Culture, Media and Sport and the Department for Education and Employment overlap. **Figure 24** illustrates where these responsibilities intersect and the main initiatives to have sprung from joint working in this area.

23 Intersecting policy objectives and key initiatives relating to school travel



Source: *National Audit Office*

24 Intersecting policy objectives and key initiatives to promote sport in schools



Source: National Audit Office

4.47 The primary aim of physical education in the curriculum is to increase pupils' physical competence and confidence in a range of physical activities. It can equip pupils with the skills to take part in physical activity outside school and foster positive attitudes to physical activity. Schools also provide an important setting for participation in physical recreation through extra-curricular activities.

4.48 Physical activity specialists have raised concerns in recent years about a decline in the time spent on physical education and extra-curricular sport in schools. These concerns were based on evidence that in many schools the priority attached to physical education had fallen, and that in some schools pupils were spending less than an hour a week in sports lessons. The importance of providing opportunities for physical activity in school was emphasized by the finding from the National Diet and Nutrition Survey, published in 2000¹⁸, that most young people were inactive, as indicated by time spent in moderate or vigorous activities. Girls were less active than boys, and activity levels fell with increasing age within the range surveyed (young people between the ages of 7 and 18).

4.49 In launching a review of the National Curriculum in 1999, the Secretary of State for Education and Employment announced the Government's intention to address these concerns, and made it clear that two hours of physical activity a week should be an aspiration for all schools. The Department for Education and Employment is working with other departments, in particular through the Inter-Ministerial Group to Improve Children's Diet and Activity, to increase opportunities to participate in sport, both through the formal curriculum and in the wider school setting.

4.50 To enhance physical education in the curriculum, the Department for Education and Employment has increased from September 2000 the range of physical activities available through the curriculum to pupils aged between 14 and 16. The high number of pupils in this age group who were opting out of school sports led the Department to consult physical activity specialists in the other departments and elsewhere on ways to encourage wider participation. This consultation suggested that alternatives to competitive team sports would be more attractive to many pupils. Thus, by broadening the range of activities schools can offer through the curriculum, the Department hopes to encourage young people, who might not otherwise have done so, to participate in different forms of physical recreation.

4.51 To enhance physical activity in the wider school setting, the Government announced significant additional funding in September 2000 on a major programme of initiatives to improve the infrastructure for sport and to encourage participation both within and beyond school hours. The main application of the funding is to target the areas of greatest need in order to reach those children who have been deprived of adequate opportunities to participate in sport. Based on a combination of indicators of deprivation, 12 Sports Action Zones have so far been established, and a further 18 will be set up in 2001.

4.52 The range of initiatives developed to increase the participation of young people in physical activity includes:

- a major programme of building and refurbishing school sports facilities, for which £600 million will be provided in England. These facilities will also be made available for community use to encourage whole families to participate in sporting activity;
- creation of more specialist sports colleges, in which a positive attitude to sporting skills and achievement are embedded within the ethos of the school and high quality facilities are provided both for pupils and the wider community;
- School Sport Co-ordinators, based in hub schools at the centre of "families" of both secondary and primary schools. The objectives of the Co-ordinators are to develop the framework of competitive sports between schools, and to help develop the coaching and leadership skills of both teachers and older pupils. The target is to establish 1,000 such Co-ordinators by 2004;
- the Sports Mark award and Sports Ambassadors schemes, which use an awards system and visits to schools by sporting celebrities to spread the message of the value of sport and provide role models to encourage wider participation;
- investment of around £7 million in the recruitment, training and placement of up to 55,000 Sport Volunteers during 2002-04. The programme will focus on building leadership skills in 14-19 year-olds, enabling them to act as role models for younger pupils. It will also seek to attract adult volunteers to encourage adults to return to physical activity and to promote participation across all age ranges; and
- a Green Spaces initiative to create spaces for play and sports in areas which lack such facilities.

4.53 In addition, the National Healthy School Standard, launched jointly by the Department of Health and the Department for Education and Employment in October 1999, provides a further incentive for schools to develop a culture that places greater emphasis on physical

recreation and sport. Physical activity is one of ten themes of the Standard, under which schools are encouraged to:

- develop a whole school approach to promoting physical activity;
- offer all pupils a minimum of two hours physical activity a week within and outside the National Curriculum;
- learn about relevant initiatives and networks and take advantage of appropriate opportunities to promote and develop physical activity; and
- encourage staff, pupils, parents, and sports development officers to become involved in promoting physical activity and develop their skills, abilities and understanding through appropriate training.

4.54 **Case Study 12** provides an example of how a school and its pupils can benefit from making physical activity and sporting achievement an integral component of the school's values.

4.55 To consolidate cross-Government work on the development of sport in schools, the Department for Culture, Media and Sport has recently established the School Sport Alliance, a joint advisory and co-ordinating committee which will represent all the key players with a role in funding and advising on school sports projects.

Case Study 12: Raising standards through sport - Baverstock School, Birmingham

Baverstock School is located in the Druid's Heath area of Birmingham, in a housing estate with very limited local amenities. The school ethos places a high value on sporting achievement, and all pupils are encouraged to participate in the wide variety of different sports that the school offers. The school has prioritised the acquisition of good sports facilities, such as by creating a well-equipped gymnasium and developing nearby wasteland into football and cricket pitches. As a result, it has become the focus of the community, with local people making extensive use of the school's facilities at evenings and weekends. As well as being among the best schools in the country for many of the 15 sports it plays, Baverstock School has seen sporting success mirrored by a steady improvement in the self-confidence, conduct and educational achievement of its pupils.

Source: National Audit Office site visit

viii. Promoting healthy eating in schools

4.56 The promotion of a healthy diet in schools can help to instil healthy eating patterns that might persist into adulthood. It is also necessary in order to address the rising prevalence of overweight and obesity among children. **Figure 25** illustrates the intersecting responsibilities of relevant Government departments and the main initiatives to have emerged from cross-cutting work.

4.57 The independent inquiry commissioned by the Government on 'Inequalities in Health', published in 1998⁴⁰, stressed the importance of providing a healthy diet in schools and recommended the provision of free school fruit. The most recent survey of the National Diet and Nutrition Survey programme, published in June 2000¹⁸, focussed on the diets and nutritional status of young people between the ages of 4 and 18 years. It found that:

- taking fruit, vegetables and fruit juice together, average consumption was 188 grams per day. This is well below the World Health Organisation's recommendation for adults of 400 grams per day, which is considered optimum for protecting health;
- although 98 per cent of children reported eating some fruit and vegetables at least once during the survey week, 20 per cent did not consume any fruit and four per cent did not consume any vegetables;
- average intakes of saturated fatty acids and added sugars were higher than recommended.

4.58 To help address these deficiencies, the Department of Health announced in July 2000 funding of £2 million on schemes to encourage the consumption of fruit and vegetables among children and young people. The Department is examining the practicalities of providing every school child aged between four and six with a free piece of fruit each school day. The Department for Education and Employment has also led the development of nutrition standards for school lunches. The aim is to enhance food choice in schools by ensuring that all school caterers meet minimum nutritional standards in the lunches they offer to schoolchildren. Regulations setting minimum nutritional standards for school lunches are being implemented from April 2001, supported by guidance for caterers which includes advice on healthy cooking methods. The standards and guidance were developed through extensive consultation with the Department of Health

and the Food Standards Agency, and the private and voluntary sectors. All school lunches will have to meet the new standards.

4.59 The Department for Education and Employment is also funding the Child Poverty Action Group to conduct research into why some children do not take up their entitlement to free school meals, with the aim of making available good practice guidance on maximising free school meal take-up.

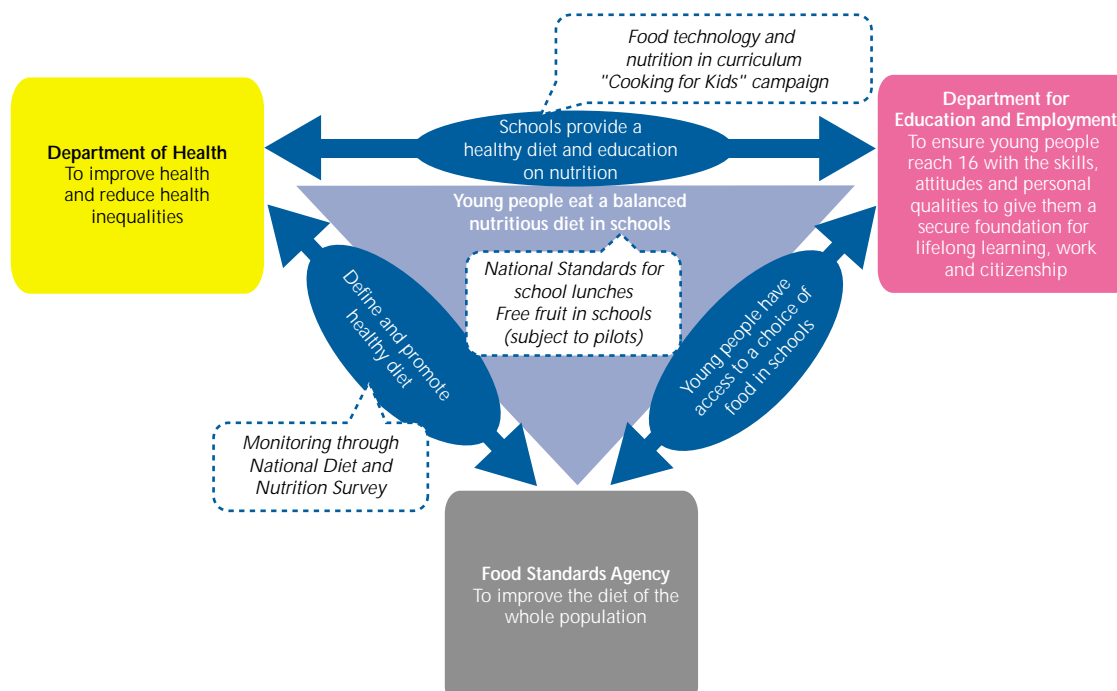
4.60 Curricular education in the areas of nutrition and food technology is complementary. Nutrition teaches pupils about the importance of food for health, the essential components of diet, the nutritional content of different foods, and how to make sensible food choices. Food technology covers the practical use and preparation of food.

4.61 A sound knowledge of food and nutrition provides a range of teaching opportunities for primary school teachers across the whole curriculum, which can be a major boost to diet and health education. To help newly qualified primary teachers to cover food and nutrition accurately and in depth, the Department of Health have published, in association with the Ministry of Agriculture, Fisheries and Food and with assistance from the British Nutrition Foundation, a guide entitled 'Food and Nutrition: Guidance on Food and Nutrition in Primary Teacher Training'. The Department for Education and Employment also receives advice and teaching aids from other industry and specialist organisations which undertake research in this area, such as the Food and Drink Federation, the British Meat Federation, and the National Association of Home Economics.

4.62 Schools also offer an environment for promoting healthy eating through extra-curricular activities involving nutrition and cookery and through providing healthy options in tuck shops and breakfast clubs. These outlets can provide an important source of nutrition, particularly for those children at risk of poor nutrition at home. Cooking for Kids is a joint initiative between the Department of Health and the Department for Education and Employment, led by Ministers, which aims to teach practical cookery skills to pupils in a stimulating way, using school facilities but outside of school hours. This range of initiatives is currently being evaluated. The Healthy Schools Programme offers further encouragement for schools to develop such activities, as healthy eating is one of the ten themes of the National Healthy School Standard.



25 Intersecting policy objectives and key initiatives to encourage healthy eating in schools



Source: National Audit Office

4.63 There is, however, a risk of inconsistency between certain sponsorship activities of schools and initiatives to promote a balanced diet for young people. In order to supplement the resources to support literacy and numeracy, for example, schools have participated with businesses in schemes to provide free books and maths equipment in return for tokens from crisp and biscuit packets. This type of commercial involvement, which has the effect of directly promoting sales of particular products, may encourage children and their families to buy more snack foods with a high fat, salt and sugar content. This would act directly in opposition to initiatives to discourage over-dependence on such energy-dense snack foods in favour of balanced meals and increased consumption of fruit and vegetables.

4.64 Whilst welcoming the positive contribution that businesses can make to education, the Department for Education and Employment recognises the risk that commercial promotions of certain foods aimed at schools might have an adverse influence on pupils' eating habits. It therefore advises schools that, before

they become involved in sponsorship, advertising or marketing schemes, or in any local business-linked activity, they should consider possible disadvantages. It advises schools to follow the National Consumer Council's 'Sponsorship in Schools - Good Practice Guidelines'⁴¹, which were developed with the help of education, business and consumer groups. This guidance states that, when considering a sponsored resource or activity, schools should ask themselves whether, among other things, "children and teachers can participate without buying the sponsor's products", and whether it is "free of incentives to children to eat an unhealthy diet or take part in unsafe/unhealthy activities". The guidance recognises that schemes are likely to "meet some guidelines and miss others" and that schools must therefore decide for themselves whether "taken as a whole, the sponsorship offer has integrity and educational value". There is no information available, however, on the extent to which schools comply with the guidance, which is currently under review.

Appendix 1

Audit methodology

1 The techniques used to examine the issues identified for the study can be classified into five areas:

- Literature review and consultation with experts;
- Cost-of-illness study;
- Surveys of health authorities, general practitioners and practice nurses;
- Review of policy objectives and initiatives across Government;
- Site visits to examine local initiatives.

Literature review and consultation with experts

2 We carried out literature searches and a review of published literature from the United Kingdom and abroad on all aspects of the study. A list of the papers referenced in this report is at the Bibliography (page 65).

3 We attended a number of conferences and seminars, including the 8th International Congress on Obesity, held in Paris in August 1998, and the 9th European Congress on Obesity, held in Milan in June 1999. We also attended a series of conferences and seminars hosted by the Association for the Study of Obesity, including a joint conference with the British Association of Sport and Exercise Sciences held in Leeds in September 1999.

4 We convened a panel of experts to advise and assist us at strategic points throughout the study. The panel comprised:

- Dr Elizabeth Evans, Scientific Director, Slimming Magazine Clubs
- Dr Gene Feder, General Practitioner and Professor of Primary Care Research and Development, St Bartholomew's and the Royal London School of Medicine and Dentistry
- Professor Ken Fox, Head of Exercise and Health Sciences, University of Bristol
- Professor John Garrow, Editor, European Journal of Clinical Nutrition
- Dr Andrew Hill, Senior Lecturer in Behavioural Sciences, Leeds University School of Medicine, and Chairman, Association for the Study of Obesity
- Professor Philip James, Chairman, International Obesity Task Force

- Professor Peter Kopelman, Professor of Clinical Medicine, St Bartholomew's & the Royal London School of Medicine & Dentistry

- Professor Ian Macdonald, Head of the School of Biomedical Sciences, University of Nottingham

- Mr Rae Magowan, Assistant Director of Public Health, Trent Regional Office, National Health Service Executive

- Dr Sue Martin, Team Leader of Police Training, Home Office (formerly Unit Head, Public Health Group, Department of Health)

- Dr Carolyn Summerbell, Reader in Human Nutrition, University of Teesside

- Professor Martin Wiseman, Head of Nutrition and Regulatory Affairs, Burson-Marsteller (formerly Head of the Nutrition Unit at the Department of Health).

5 We also consulted more widely with important stakeholders in issues related to the management and prevention of obesity, diet and nutrition, and physical activity. We consulted academics, clinicians, professional bodies in the health sector, voluntary bodies (including those established to represent obese people), and the private sector. This process included the following organisations:

Adrian Davis Associates
 Association for the Study of Obesity
 British Dietetic Association
 British Heart Foundation
 British Medical Association
 British Obesity Surgery Society
 Centre for Obesity Research (Luton and Dunstable Hospital)
 Child Growth Foundation
 Eurobesitas
 Food and Drink Federation
 Infant and Dietetic Foods Association
 International Association for the Study of Obesity
 Knoll Pharmaceuticals
 National Heart Forum
 National Primary Care Facilitation Programme
 Roche Pharmaceuticals
 Royal College of General Practitioners
 Royal College of Nursing
 Royal College of Physicians
 Royal College of Surgeons
 Sustain
 Tesco Stores Ltd
 The Obesity Awareness and Solutions Trust

Cost-of-illness study

- 6 We employed Medtap International Inc to advise on the feasibility and to propose a methodology for a study to estimate the cost of obesity in England, both to the National Health Service and to the wider economy. We then appointed City University to undertake the study and to prepare a report to present their findings. The detailed methodology, results and conclusions drawn from this work are provided at Appendix 6.

The surveys

Health authorities

- 7 During the Summer of 1999 we carried out a postal survey of Directors of Public Health at all health authorities in England. The purpose of the survey was to gather information about the extent to which health authorities had addressed the issue of obesity through local strategies and action plans, and through support for local services and initiatives. We also asked how each health authority had addressed obesity through its Health Improvement Programme as at April 1999. A total of 94 of the 100 health authorities at the time of the survey replied.

Postal survey of general practitioners and practice nurses

- 8 During July 1999, we carried out a survey of general practitioners and practice nurses. The objectives of the survey were:

- to learn what general practices were doing to help prevent obesity and to manage both overweight and obese patients;
- to explore their perceptions of the problem of obesity and to seek their views on what role they should play in helping to address it;
- to identify any factors that constrained the efforts of general practitioners and practice nurses to help overweight and obese patients, and to explore what would most help them to manage such patients more effectively;
- to identify potential examples of good practice.

- 9 We sent two self-completion postal questionnaires to 1200 practices across England. One questionnaire was addressed to a named general practitioner at the practice, the other to the practice nurse. The sample was stratified to provide a range of general practitioners by region of practice, gender of practitioner, and size of the practitioner's patient list.

- 10 We calculated the sample size to provide us with sufficient data, working on the assumption that no more than a third of general practitioners would return a completed questionnaire. Many general practitioner

surveys receive a considerably lower response rate, and a pilot survey indicated that we could expect about 30 per cent to respond. This in part reflects the heavy day to day workload of general practitioners. Given that general practitioners are independent, self-employed professionals, they are under no obligation to respond. In the event, we received a satisfactory response rate of 36 per cent (428 respondents) to the survey of general practitioners, and 52 per cent (627 respondents) to the survey of practice nurses.

- 11 **Figure 26** summarises the information requested in the questionnaires.

26 Information requested in postal questionnaires

Background information about the general practitioner/practice nurse and the practice

Use of, and attitudes to, protocols

Roles in weight management

Assessment and recording of body weight/shape

Health promotion and prevention

Management of overweight and obese patients, including advice and treatment provided by the practice and referral outside the practice

Effectiveness of prevention and treatment programmes

Qualitative interviews with general practitioners and practice nurses

- 12 Following receipt of the self-completion postal questionnaires, we selected a sample of general practitioners and practice nurses at 20 practices for face-to-face, structured interview. The purpose of the interviews was to explore further the answers given to the postal questionnaire and to:

- examine in more depth the interviewees' perceptions of the issue of obesity;
- understand how general practices determine their approach to the treatment of overweight and obese patients;
- follow up examples of good practice.

- 13 We selected the practices to ensure a geographical spread in England, and to cover a wide spectrum from those general practitioners whose questionnaire response indicated that they spent relatively little time advising and treating overweight and obese patients, to those who were very active in this area. The interviews, with 20 general practitioners and 16 practice nurses, were carried out late in 1999.

Review of policy objectives and initiatives across Government

- 14 Through discussion with policy staff at the Department of Health, we identified the other main players within Government with an influence on the principal features of lifestyle that affect body weight: what we eat and how much exercise we take. These were:
- Department for Culture, Media and Sport
 - Department for Education and Employment
 - Department of the Environment, Transport and the Regions
 - Food Standards Agency (from April 2000)
 - Health Education Authority (until March 2000)
 - Health Development Agency (from April 2000)
 - Ministry of Agriculture, Fisheries and Food.
- 15 We examined key documents and spoke to policy staff in each of these departments and agencies to identify any objectives which might influence patterns of eating and physical activity. We then undertook a series of interviews with the staff nominated within each organisation to establish the main mechanisms they used for working with other departments and agencies, how effective collaboration had been, and what the key outputs were in terms of jointly-sponsored research, projects and initiatives. We also asked them where possible to provide examples of local initiatives and joint working, involving organisations such as local authorities, health authorities, schools, and local providers of health and social services, which demonstrated this cross-cutting approach.
- 16 We looked in particular for evidence of the main categories of cross-cutting intervention identified in the Cabinet Office report, 'Wiring it up' (1999)³¹ as follows:
- Organisational change
 - Merged structures and budgets
 - Joint teams
 - Shared budgets
 - Joint customer interface arrangements
 - Joint management arrangements
 - Shared objectives and performance indicators
 - Consultation to enhance synergies and manage trade-offs
 - Sharing information to increase mutual awareness.

Site visits

17. We undertook a number of field visits to observe at first hand how local initiatives operated in schools, hospitals and specialist centres, and to interview the people involved. This included visits to:
- Baverstock School in Birmingham
 - Carnegie International Camp (weight loss Summer camp for children), Leeds
 - Centre for Obesity Research, Luton and Dunstable Hospital NHS Trust
 - East Hertfordshire NHS Trust
 - Stockport Acute Services NHS Trust
 - Stockport Healthcare NHS Trust.

Appendix 2

The measurement of obesity

1 Obesity is normally measured by clinicians in terms of the body mass index (kg/m²). **Figure 27** shows the different classifications of body mass index (BMI) used in England by the Department of Health. This shows that there are different degrees of excess weight, and of associated risk, above the range considered healthy (BMIs over 20 to 25). Obesity is defined by a BMI over 30. People with a BMI over 40 are described as severely or morbidly obese. At this level it is expected that some clinical complications associated with the obesity will be present. Data produced by the Health Survey for England on the proportion of the population that is overweight and obese use these definitions.

27 This table shows the way different BMIs are classified and the relationship between BMI and risk of associated diseases

Body Mass Index (kg/m ²)	Classification	Risk of disease associated with excess weight
Less than 20	Underweight	Low (but increased risk of other clinical problems)
Over 20 to 25	Desirable or healthy range	Average
Over 25 to 30	Overweight	Increased
Over 30 to 35	Obese (Class I)	Moderate
Over 35 to 40	Obese (Class II)	Severe
Over 40	Morbidly or severely obese (Class III)	Very severe

Source: BMI classifications from the Health Survey for England⁴ with additional data on associated risk from the World Health Organisation¹⁰

2 There is a range of other measures used to record body shape. Because the health risks of obesity are compounded by the influence of fat which is distributed around the waist, the waist circumference or waist:hip ratio are sometimes used. In general, men are at increased risk of obesity-related diseases when the waist circumference reaches 94cm (37 inches), and women when it reaches 80 cm (32 inches). This risk becomes substantially increased at 102cm (40 inches) for men, and 88cm (35 inches) for women¹⁰.

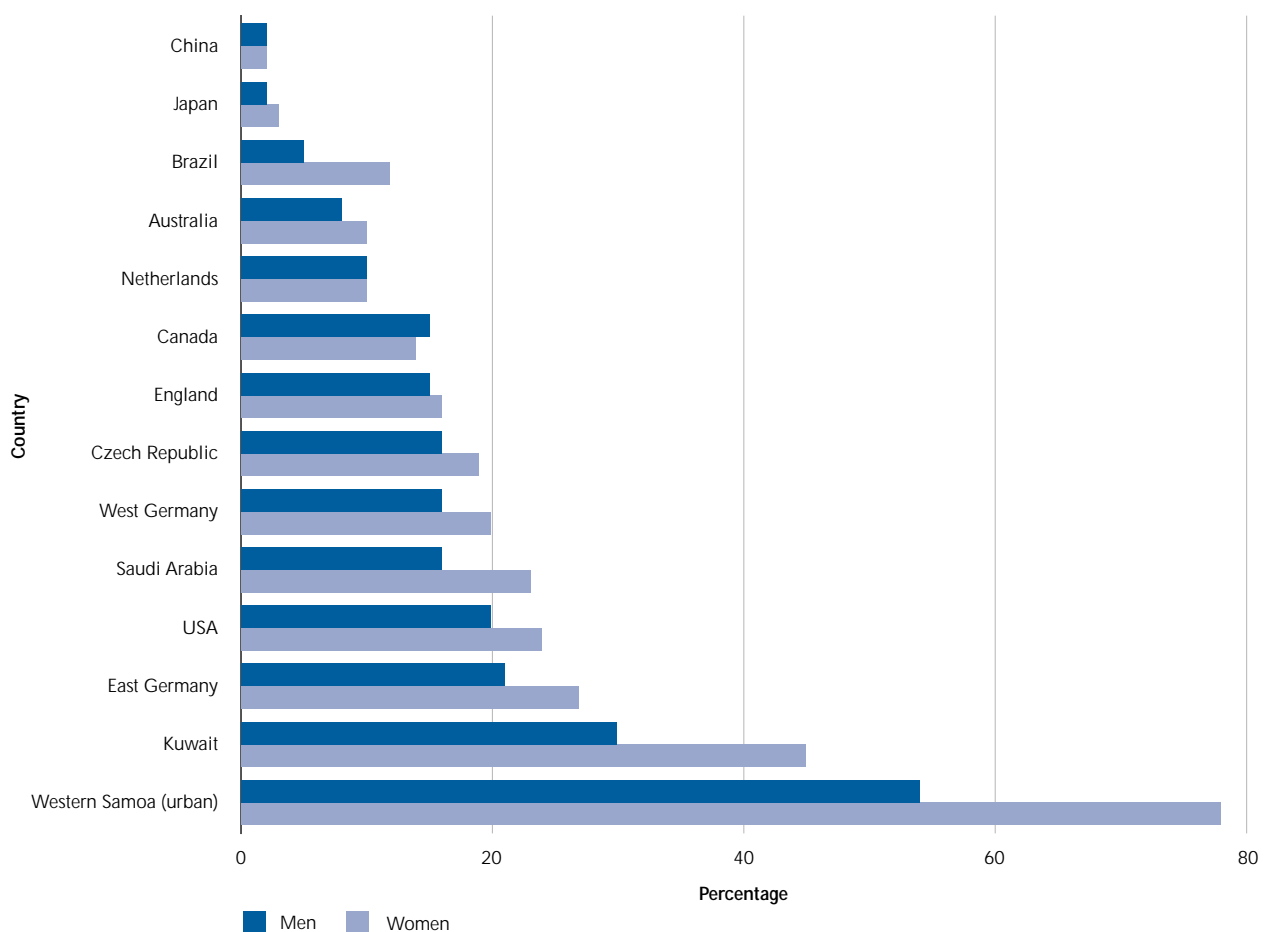
3 Classifying obesity in children is more complicated, and there is no international consensus on the appropriate cut-off point for classifying a child as obese. In children, BMI changes substantially with age, rising steeply in infancy, falling during the pre-school years, and then rising again into adulthood. For this reason, child BMI needs to be assessed against standards which make allowance for age¹⁰. Proposed cut-off points have been published based on an international survey of six large nationally representative cross-sectional growth studies⁴².

Appendix 3

Global prevalence and trends in obesity

- 1 The picture in England reflects an upward world-wide trend. The International Obesity Task Force was established to lead research on the global epidemic of obesity and to help Governments to develop strategies to address it. It is associated with the International Association for the Study of Obesity which has 39 constituent national bodies for research on obesity throughout the world. The Task Force, working in partnership with the World Health Organisation, has gathered evidence on the prevalence and trends in obesity throughout the world. **Figure 28** shows the Task Force's estimates of the prevalence of obesity for men and women in a range of countries where broadly comparable data were available.
- 2 The Task Force has found that the rise in obesity is not restricted to more developed countries¹¹. The prevalence of obesity is also rising amongst more affluent populations of less developed countries, even those with significant rates of under-nutrition. Ghana, for example, now has only slightly more underweight than overweight people. There are also small population groups throughout the world with very high rates of obesity. Amongst the urban population of Western Samoa, for example, over half the men and three-quarters of the women are obese, as are 44 per cent of black women living in the Cape Peninsular of the Republic of South Africa. Thus, the upper limit on the proportion of people who may become obese in any population is very high. This underlines the need to find ways throughout the world to arrest the rising trend.

28 Global prevalence of obesity in adults, 1991-92 (BMI \geq 30)



Note: There are differences in the timing and age ranges used in individual national studies, but the data used above represent the best estimates of the comparative prevalence of obesity in adults in these countries in the period 1991-92

Source: *International Obesity Task Force*

Appendix 4

The demographic distribution of obesity in England

Most people get fatter as they get older

- 1 In general, weight increases with age. Data from the Health Survey for England¹ suggest that people of both sexes gain weight most rapidly in their twenties and early-thirties and continue to put on weight gradually into their seventies. **Figure 29** shows the percentage of overweight and obese men and women of different age ranges as measured by Health Survey for England data from 1998.

1980s. The study estimates that overweight increased between 1984 and 1994 from 5.6% to 9% in boys and from 9.3% to 13.5% in girls in England. The prevalence of obesity increased correspondingly to 1.7% for boys and 2.6% for girls.³⁴

- 3 The presence of obesity in adolescence is highly correlated with chronic obesity in adulthood¹². The rising trend of obesity in children and young people therefore has very serious implications for the future prevalence of obesity in the adult population.

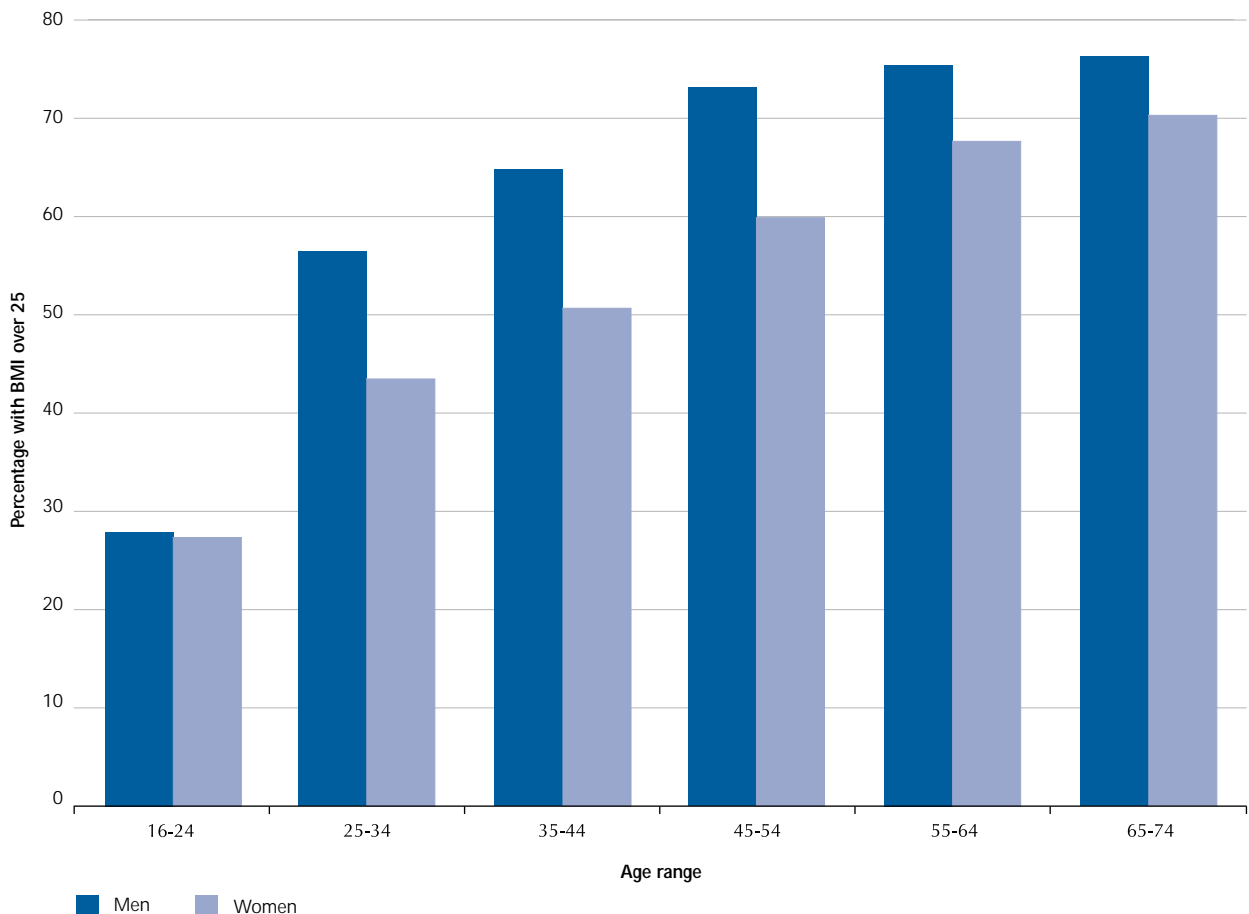
Obesity in children is increasing

- 2 The only nationally representative British study of the height and weight of primary school children was the National Study of Health and Growth (1974-1994). This study shows that the prevalence of obesity in children is low, but has increased substantially since the mid

People in lower socio-economic groups are more likely to be obese

- 4 Education, social class and prosperity have an important influence on the risk of becoming obese. In general, obesity tends to be more prevalent in the lower socio-economic and lower income groups. The most recent

29 Percentage of overweight and obese men and women in 1998 by age range



Source: National Audit Office analysis of Health Survey for England¹ data

Health Survey for England¹, in 1998, included measurement of obesity by household income and by the social class of the head of each participating household. Analysis of these data shows that the prevalence of obesity in both men and women increases from the highest to the lowest income category. Obesity is also higher in manual than in non-manual social classes. In particular, there is a strong social class gradient in the prevalence of obesity in women: the prevalence was only 14 per cent in the highest social class (Social Class I), whereas in the lowest (Social Class V), 28 per cent of women were obese (Figure 30).

There is a higher prevalence of obesity in certain ethnic groups in England

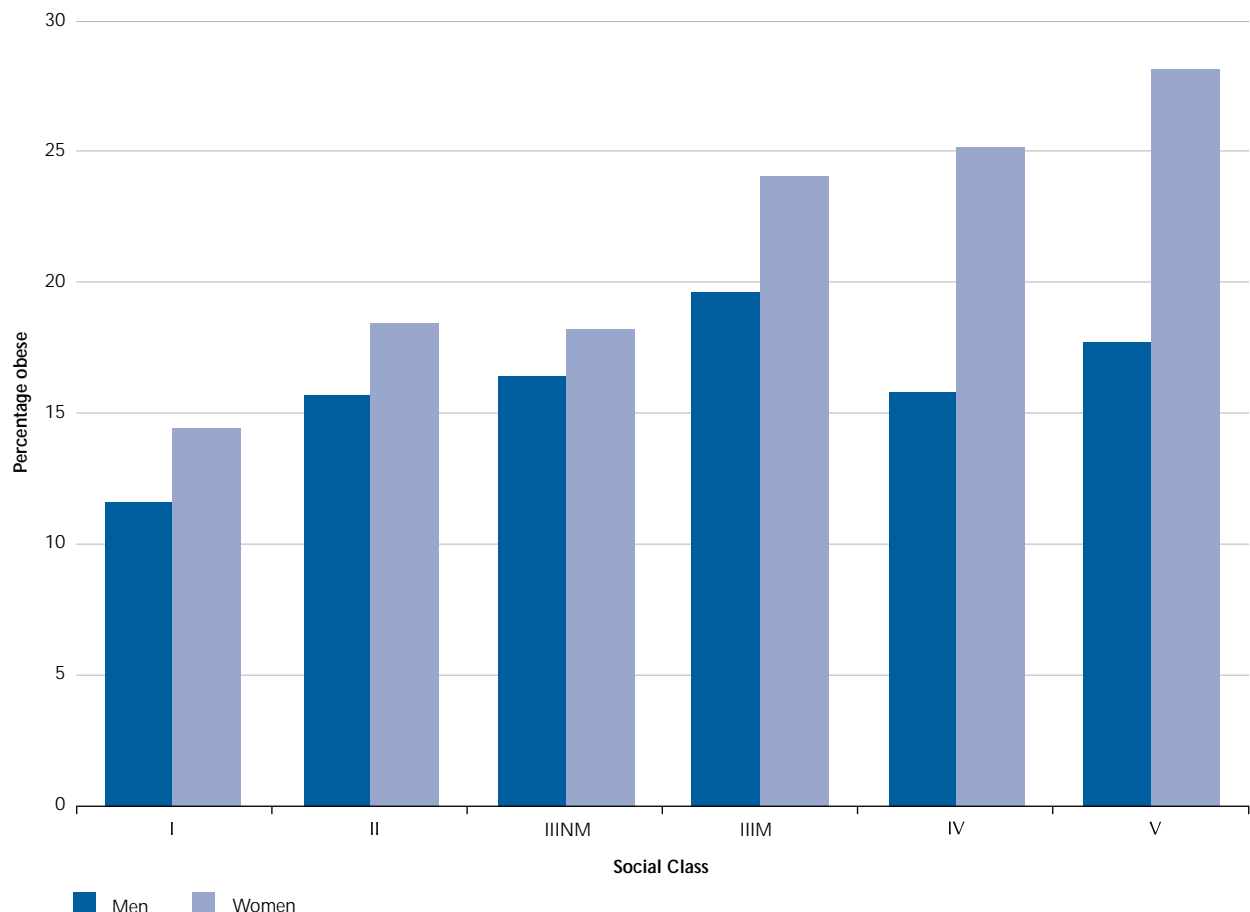
- 5 Preliminary findings from the Health Survey for England for 1999⁴³ also show a higher prevalence of obesity among certain ethnic groups. In particular, prevalence is higher among Black Caribbean and Pakistani women than among women in general.

- 6 Certain ethnic groups may be more genetically predisposed to obesity than others. There is also a link to different cultural influences, which can affect both diet and the amount of physical activity undertaken. This has been observed most clearly in recent migrant populations. Studies have shown that some migrant groups who move to the United Kingdom become more overweight than the general population. This may be because of a combination of poor social conditions, low levels of physical activity and a sudden increase in the amount of fat in the diet².

Obesity is a problem throughout England

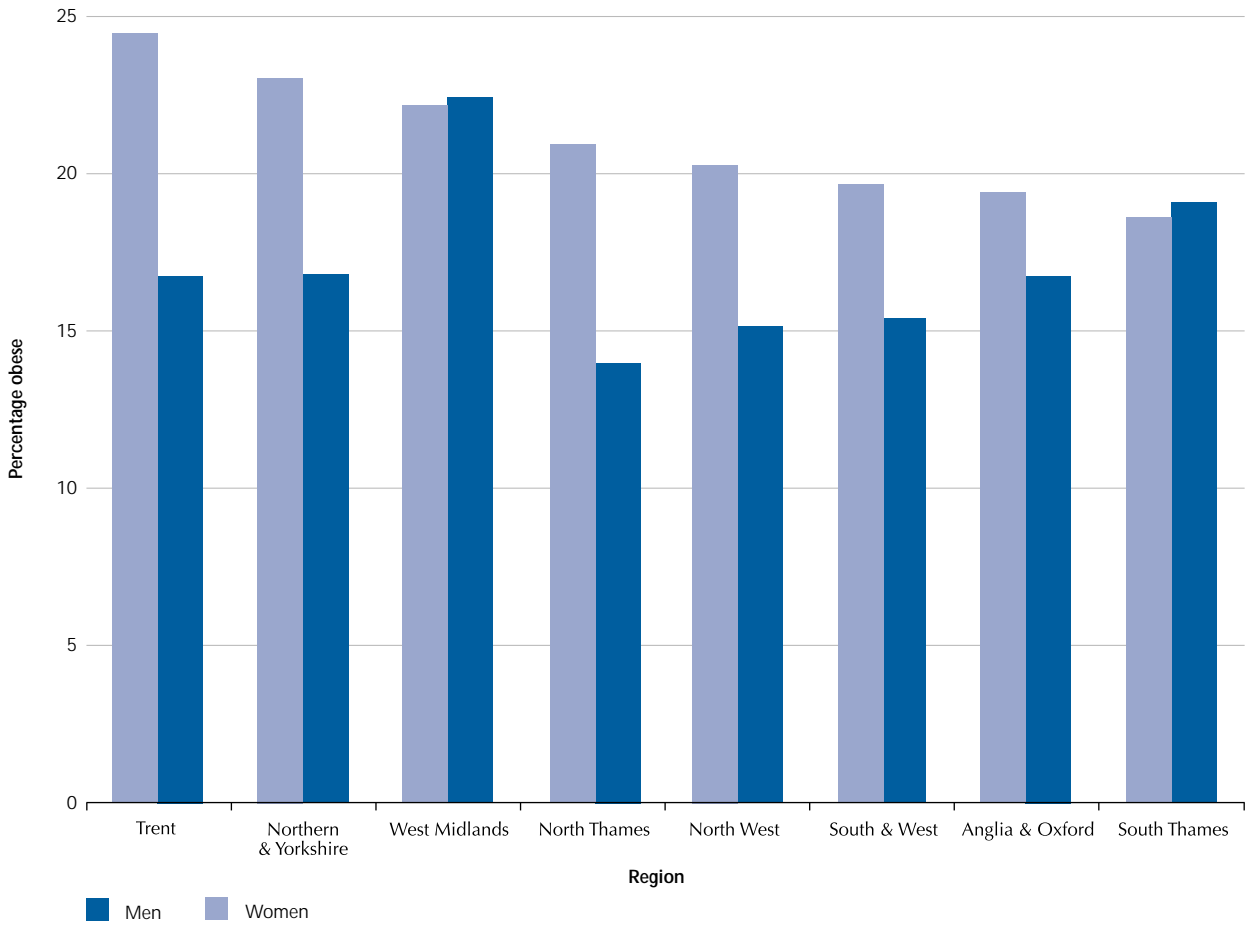
- 7 Data from the Health Survey for England in 1998¹ indicate some regional variation in the prevalence of obesity but they also show that it is a significant problem in all parts of England (Figure 31). At least 18 per cent of adults - more than one in six - in all regions were obese, with the highest prevalence being 22 per cent in the West Midlands. All regions showed an increase over the two years since the previous study, when the range was between 15 and 19 per cent.

30 Prevalence of obesity in men and women from each of the six social classes measured by the Health Survey for England 1998



Source: National Audit Office analysis of Health Survey for England¹ data

31 Prevalence of obesity in the regions of England



Source: National Audit Office analysis of Health Survey for England¹ data

Appendix 5

The human costs of obesity

- 1 Obese people are more likely to suffer from a number of serious chronic diseases, many of which are life-limiting. Besides the physical effects, the psychological and social burdens of obesity can also be debilitating.

Diseases associated with obesity

Coronary heart disease

- 2 The most common cause of premature mortality among obese people is coronary heart disease. Our work on the costs of obesity in 1998 (the latest year for which data were available) suggests that approximately 28,000 people in England suffered a heart attack in that year that was directly attributable to obesity (Appendix 6).
- 3 In women, obesity is the third most powerful predictor of cardiovascular disease (after age and blood pressure). This is in part because it is strongly associated with other important risk factors for heart disease such as high blood pressure and high cholesterol. The risk of heart attack for an obese woman is approximately three times that of a lean woman of the same age⁴⁴.

Type 2 diabetes

- 4 Of all serious diseases, Type 2 diabetes has the strongest association with obesity¹⁰. The metabolic problems which give rise to this type of diabetes most commonly occur as a result of excess weight. Indeed, the risk of developing Type 2 diabetes rises with increasing body mass index well below the threshold of clinical obesity. Women who are obese are 12 times more likely to develop non-insulin dependent diabetes than women of a healthy weight. Diabetes itself predisposes people to high blood pressure and heart disease⁴⁵.

Cancer

- 5 The link between obesity and cancer is less well-defined. Research suggests that the risk of a number of cancers is increased by obesity, including: breast cancer and cancer of the endometrium, uterus, cervix, ovary and gall-bladder in women; and cancer of the rectum and prostate in men⁴⁶. The clearest association is with cancer of the colon, for which obesity increases the risk by nearly three times in both men and women.

Osteoarthritis

- 6 Osteoarthritis, or degenerative disease of the weight-bearing joints such as the knee, is a very common complication of obesity, which causes a great deal of disability⁴⁷. Pain in the lower back is also frequently suffered by obese people, and may be one of the major contributors to obesity-related absences from work. It is likely that the excess weight alone, rather than any metabolic affect, is the cause of these problems.

Respiratory disease

- 7 Many respiratory disorders are related to obesity, the most serious of which is obstructive sleep apnoea. Sufferers experience the intermittent cessation of breathing during sleep, which causes broken sleep patterns and may contribute to high blood pressure and heart disease⁴⁸.

Reproductive disorders

- 8 Obese people of both sexes are more likely to suffer reproductive disorders, and for obese women there is an increased risk of complications during pregnancy.⁴⁹

Social and psychological penalties

Stigmatisation

- 9 In studies that have examined the reactions of schoolchildren to various forms of physical disability and obesity, obese children were consistently rated the least attractive by their peers. In one study of obese schoolgirls, obesity was rated a social stigma by 78 per cent of girls in the healthy weight range, and 62 per cent of overweight girls⁵⁰. Obese girls were perceived by their peers to be less active, less attractive, less healthy, weak-willed and having inferior physical abilities and poor self-control regarding dietary habits.
- 10 Another study noted that in affluent societies, obese people are subject to intense prejudice and discrimination, and that children as young as six describe obese children as "lazy, dirty, stupid, ugly, cheats and liars"⁵¹. Thus, the stigma of overweight appears to have two aspects: stigmatisation of the appearance of the body and stigmatisation of the character of the person for the perceived moral failure of not controlling one's weight.

Impact on mental health

- 11 Obese people, and the severely obese in particular, are more likely to suffer from a number of psychological problems, including binge-eating, low self-image and confidence, and a sense of isolation and humiliation arising from practical problems¹⁰.
- 12 In a study that examined the psychological wellbeing of extremely obese patients awaiting surgery to induce weight loss, many more patients listed social rather than medical considerations as their main reason for seeking surgery. Of these patients, 40 per cent said they "always" or "usually" had experienced acts of discrimination at work, within the family or in a public place; 77 per cent felt depressed and in low spirits daily or almost daily; and all patients considered themselves unattractive.
- 13 It is difficult to separate cause from effect in the relationship between obesity and psychological disorders. Whilst mental wellbeing may suffer as a result of the pressures associated with being obese, psychological problems may equally contribute to the type of behaviours, such as emotional and binge-eating, that can result in the onset of obesity.

Appendix 6

Estimating the cost of obesity in England

Introduction

- 1 In setting out to examine the burden of obesity, we found that there was no authoritative estimate of the cost of obesity to the National Health Service or to the wider English or United Kingdom economy. We therefore worked with health economists to develop a suitable methodology for evaluating the costs of obesity in England.
- 2 This appendix sets out the methodology, findings and conclusions from our evaluation of the direct and indirect costs of obesity in England in 1998, the latest year for which the necessary data were available. We commissioned this research from Professor Alistair McGuire, Mr Stephen Morris and Ms Maria Raikou from the Department of Economics at City University, London.

Methodology

- 3 We describe below the methods used to calculate the costs of treating obesity and its consequences. Together these represent the direct costs of obesity. In addition, we describe the methods used to estimate the indirect costs arising from the effect of obesity on individuals' capacity to function in their usual role. For the purposes of this analysis, obesity was defined as a body mass index of 30 kg/m² or greater.

Direct costs

- 4 The direct costs of obesity were defined as the costs to the National Health Service of treating obesity and the associated disease that can be attributed to it. We sought to estimate the direct costs of obesity in England in 1998 by taking a prevalence-based, cost-of-illness approach based on extensive literature review and relying on published primary data.

Cost of treating obesity

- 5 This covered the cost of consultations with general practitioners related to obesity, the cost of hospital admissions and outpatient attendances, and the cost of drugs prescribed to help obese patients lose weight. We took the most recent published data on the incidence of these events in England^{52,53,54} and multiplied them by unit cost data for 1998⁵⁵. Prescription costs for obesity were taken from Prescription Cost Analysis reports for England⁵⁶.

Cost of treating the consequences of obesity

- 6 This covered the cost of treating cases of diseases such as coronary heart disease which can be directly attributed to obesity. The cost of treating these diseases was estimated by calculating the relevant population attributable risk proportion. We undertook a systematic review of the literature to establish for each disease the best data available on the proportion of that disease in the population that was attributable to obesity, and which in theory would be eliminated if obesity were eliminated. This proportion was defined by the relative risk of developing associated diseases for individuals with obesity compared to the risk for non-obese individuals.
- 7 A search of the MEDLINE database returned 3,537 studies with key words for obesity and the potentially relevant diseases. These were reviewed and reduced to 48 studies which presented data on the relative risk of disease associated with obesity, and which calculated this risk between discrete groups of "obese" and "non-obese" individuals defined by body mass index (kg/m²). From the 48 retained studies, 17 were selected to provide data for the baseline analysis according to the following pre-determined hierarchical criteria:
 - associated diseases were considered only where an increased relative risk for obese individuals was unequivocal;
 - cohort studies were selected in preference to case-control studies, which were selected in preference to cross-sectional studies; and
 - larger study samples were selected in preference to smaller samples.
- 8 Limited data on relative risk were available from the United Kingdom, so most of the data used were taken from international evidence, especially from the United States. The effect of this on our estimates is discussed at paragraph 24.
- 9 To establish the cost of treating associated diseases in 1998, we first obtained published data on general practitioner consultation rates⁵², hospital inpatient admissions⁵³, and hospital outpatient attendances⁵⁴ in England. These were then multiplied by published data on unit costs⁵⁵ to derive an estimate of the NHS treatment costs for each disease. Prescription costs were taken directly from Prescription Cost Analysis reports for England⁵⁶. These cost estimates were then applied to

the data on relative risk and age- and sex-specific prevalence of obesity published in the Health Survey for England 1998¹ to give an estimate of the cost of treating the consequences of obesity.

Indirect costs

- 10 We approximated the indirect costs of obesity by estimating the earnings lost due to obesity and its consequences. These costs have two components: earnings lost due to premature mortality; and earnings lost due to sickness.

Earnings lost due to premature mortality

- 11 We estimated earnings lost due to premature mortality by first identifying from the literature review the best data on the proportion of all deaths that are attributable to obesity. These data were then applied to the number of age- and sex-specific deaths in England (taken from 'Key Population and Vital Statistics for England', Office of National Statistics) to estimate the number of deaths attributable to obesity in England in 1998.

- 12 Data on residual life expectancy by age and sex were taken from the Annual Abstract of Statistics⁵⁷ and applied to the number of deaths to give an estimate of the years of life lost due to obesity. Assuming an end of working life of 65 for men and 60 for women, we then adjusted these data by labour market participation and employment rates to estimate the years of working life lost due to obesity. Finally, these figures were multiplied by mean annual earnings data and discounted to present values at the rate of six per cent to arrive at the discounted earnings lost due to premature death caused by obesity in 1998.

Earnings lost due to sickness absence

- 13 Lost earnings due to sickness attributable to obesity were estimated using days of certified incapacity from 1 April 1997 to 31 March 1998. Figures for sickness attributed to obesity and its associated diseases were supplied by the Department of Social Security, detailing days of certified incapacity benefit by cause where a claim to benefit was made, drawn from a one per cent sample of claims to benefit in Great Britain.
- 14 We multiplied the days lost due to associated diseases by the data on the proportion of each disease attributable to obesity to give an estimate of the number of days off work attributable to obesity. This was then multiplied by mean daily earnings figures to calculate lost earnings due to sickness attributable to obesity.

Results and discussion

Direct costs of treating obesity

- 15 We estimated the known, direct costs of treating obesity in England in 1998 to be £9.4 million at 1998 prices (Figure 32).

32 The cost of treating obesity in England in 1998 (£)

Contact	Total contacts	Unit cost (£) ⁵⁵	Total cost (£m)
General practitioner consultations	519,486	13	6.8
Ordinary admissions	1,220	1,066	1.3
Day cases	127	403	0.1
Outpatient attendances	4,829	102	0.5
Prescriptions			0.8
Total			9.4

- 16 By far the largest component of this cost was general practitioner consultations: over half a million such consultations were recorded in 1998 at a cost of £6.8 million. This is probably an under-estimate for two reasons.

- 17 First, the number of consultations for obesity is likely to have been underestimated. The most recent data was for 1991-92 and since then the prevalence of obesity has risen. If the number of general practitioner consultations for obesity increased since 1992 at the same rate as the increase in the number of obese people, then the number of consultations would rise to nearly 700,000, with a cost of over £9 million.

- 18 Second, no data were available on consultations with practice nurses and dietitians in primary care. Evidence from the National Audit Office's survey of general practitioners and practice nurses carried out for this report suggests that the amount of time spent by practice nurses in monitoring and advising obese patients exceeds that spent by most general practitioners. Therefore, the cost of primary care interventions for obesity is likely to be significantly greater than that indicated by general practitioner consultations alone.

19 There were relatively few hospital admissions or outpatient attendances specifically for obesity: just over 6,000, at a total cost of £1.8 million. The costs of drugs prescribed for weight loss was £0.8 million in 1998. It should be noted, however, that the gastro-intestinal drug, Orlistat - which accounted for 85% of the total - was not licensed for use in the United Kingdom until the last quarter of 1998. This suggests that the annual cost of prescriptions in 1999 and beyond is likely to be considerably higher.

Cost of treating the consequences of obesity

20 We estimated the cost of treating the disease attributable to obesity to be £469.9 million (Figure 33).

21 By far the biggest contributors to this cost were coronary heart disease (angina pectoris and myocardial infarction), Type 2 diabetes, and hypertension, which together accounted for over 80 per cent of the total. The next most significant contributors were osteoarthritis, stroke, gall-bladder disease and colon cancer.

22 There are a number of potentially important disease areas that were excluded from this analysis because of a lack of data to allow us to estimate the proportion of treatment costs that could be attributed to obesity. For example, depression, hyper-lipidemia and back pain were not included because no studies were identified in the systematic review that reported the relative risk for

obese individuals of developing these conditions. This does not mean that obesity is not an important risk factor for these conditions. Even a small proportion of the cost of antidepressants (£279m in 1998) and lipid-regulating drugs (£190m in 1998) would significantly increase the estimate of direct costs.

23 There are three further limitations to the analysis. Firstly, while the most widely accepted definition of obesity (a body mass index of 30kg/m² or above) was used as far as possible, some of the disease-specific studies from which relative risk was taken had applied different cut-off points to define the obese and non-obese groups. This may have led to a degree of over- or under-estimation of the obesity-attributable costs of particular diseases, but there is no discernible bias either way in the overall approach taken.

24 Secondly, the data on relative risk for most associated diseases were taken from international studies due to a lack of comparable data in the United Kingdom. International studies will only give truly reliable indicators where the characteristics of the study population broadly match the characteristics of the English population. All but one of the studies used in the analysis were undertaken in North America or Western Europe. While the extent to which the same relative risks apply to the English population is uncertain, they nevertheless represent the best data available on which to base relative risk estimates.

33 The costs of treating the consequences of obesity in England in 1998

	Attributable cases (% of total cases)	Cost of General Practitioner consultations (£m)	Cost of hospital contacts ¹ (£m)	Cost of prescriptions (£m)	Total cost (£m)	Proportion of total costs (%)
Hypertension	794,276 (36)	25.5	7.7	101.6	134.8	29
Type 2 diabetes	270,504 (47)	7.9	36.7	78.9	123.5	26
Angina pectoris	90,776 (15)	2.8	35.3	46.6	84.7	18
Myocardial infarction	28,027 (18)	0.6	41.6	0.0	42.2	9
Osteoarthritis	194,683 (12)	4.7	14.5	15.6	34.8	7
Stroke	20,260 (6)	0.5	15.7	0.5	16.7	4
Gallstones	8,384 (15)	0.2	10.2	0.4	10.8	2
Colon cancer	7,483 (29)	0.4	10	0.0	10.4	2
Ovarian cancer	1,543 (13)	0.1	3.8	0.1	4.0	1
Gout	96,549 (47)	2.2	0.0	1.7	3.9	1
Prostate cancer	809 (3)	0.0	0.9	1.7	2.6	1
Endometrial cancer	834 (14)	0.0	1.1	0.1	1.2	0
Rectal cancer	126 (1)	0.0	0.2	0.1	0.3	0
Total		44.9	177.7	247.3	469.9	100

Note 1. Ordinary admissions, day cases and outpatient attendances combined

25 Thirdly, it should be noted that the analysis of the direct costs attributable to obesity comprises only the costs of treatment provided by the National Health Service. It does not for example include the costs to Social Services. Inclusion of other costs to the public sector attributable to obesity, such as a proportion of the costs of social care for stroke patients, could increase the direct costs of obesity considerably.

Indirect costs

Earnings lost due to premature mortality

26 We estimated that over 31,000 deaths in England in 1998 were attributable to obesity, approximately six per cent of all deaths. This represented over 275,000 life years lost due to obesity. Some 9,000 of these deaths occurred before the age of 65, resulting in a loss of over 40,000 years of working life up to state retirement age alone (Figure 34). The associated lost earnings due to obesity were £827 million.

34 Deaths, years of life lost and years of working life lost attributable to obesity in England in 1998

	Attributable deaths	Attributable years of life lost ¹	Attributable years of working life lost ¹
Males	14,185	129,940	31,133
Females	16,894	145,696	8,943
Total	31,078	275,636	40,076

Note: 1. Discounted at 6% per annum.

Earnings lost due to sickness absence

27 We estimated that there were over 18 million days of sickness attributable to obesity (Figure 35). On this basis, lost earnings due to sickness absence attributable to obesity in 1998 were £1,322 million.

28 This is almost certainly an underestimate for two reasons. Firstly, the days of absence recorded were based on medically certified days of incapacity where a claim to benefit was made. No data on self-certified days of sickness were available. And secondly, due to the lack of available information on the relative risk for obese individuals, sickness absence due to certain conditions known to be associated with obesity, such as back pain, was excluded from the analysis. Back pain is one of the most common causes of certified sickness absence and its inclusion could significantly increase the estimate.

35 Days of certified incapacity attributable to obesity in England in 1998

	Attributable days of certified incapacity (000)
Type 2 diabetes	5,964
Hypertension	5,156
Angina pectoris	2,390
Myocardial infarction	1,225
Cancers ¹	970
Osteoarthritis	951
Gout	531
Stroke	440
Obesity	418
Gallstones	17
Total	18,062

Note: 1. Endometrial cancer, colon cancer, rectal cancer, ovarian cancer and prostate cancer combined

29 There are two different theoretical approaches to estimating the value of production losses caused by illness and premature mortality. The more conservative "friction cost" approach assumes that loss of output from individuals is compensated for by adjustments in the economy. In the short term, absences from work may be compensated for by the worker on their return to work or by colleagues. And for long term absences, the employer is likely to hire a replacement worker, which has only a marginal cost in an economy without full employment. This approach is not universally accepted by academics, and it is in any case not possible to apply directly in England because of the lack of suitable data on labour market conditions. We have therefore used a "human capital" approach, which uses lost earnings through sickness or premature death as a proxy for the value of production losses. This is likely to yield higher estimates than the "friction cost" method.

30 A limitation to these estimates is that calculating lost earnings due to obesity on the basis of mean average earnings probably overstates the true cost. Data from the Health Survey for England¹ show that the prevalence of obesity is higher in people with a lower household income. This indicates that the obese group earns less than the mean average earnings of the population as a whole. In the absence of data on the mean earnings of the obese group, however, mean average earnings offer the best proxy available.

- 31 While the approach used may, for the above reasons, overestimate the indirect costs of obesity to the economy, the analysis nevertheless serves to demonstrate the substantial burden of obesity to individuals in terms of sickness and mortality.

Conclusion

- 32 The direct cost of obesity to the National Health Service in England in 1998 was at least £480 million, equivalent to about 1.5 per cent of NHS expenditure in that year. The direct cost is driven primarily by the costs of treating the secondary diseases attributable to obesity, which accounted for 98 per cent of the total. The most significant cost drivers by far are hypertension, coronary heart disease, and Type 2 diabetes, followed by osteoarthritis and stroke.
- 33 Direct costs are probably under-estimated by this analysis due to the factors outlined in the discussion above, in particular the potentially high costs associated with treating obesity-related depression and hyperlipidemia. It also excludes other public expenditure not borne directly by the National Health Service, such as the costs of social care for obesity-related stroke patients.
- 34 The indirect cost of obesity in England in 1998 represented by lost earnings was estimated to be £2,149 million, of which 61 per cent was due to sickness absence attributable to obesity, and the remainder to premature mortality. The amount of sickness absence due to obesity may be under-estimated due to the exclusion of back pain, a potentially significant contributor. A friction cost approach to valuing lost output would reduce the estimates, however.
- 35 Combining our best estimates of direct and indirect costs, the total cost of obesity in England in 1998 was £2.6 billion, or 0.3 per cent of UK Gross Domestic Product. Direct costs accounted for 18 per cent of the total. The full results are summarised in [Figure 36](#).

36 Total cost of obesity in England in 1998

Cost component	Cost (£m)
Cost of treating obesity	
General Practitioner consultations	6.8
Ordinary admissions	1.3
Day cases	0.1
Outpatient attendances	0.5
Prescriptions	0.8
Total costs of treating obesity	9.5
Cost of treating the consequences of obesity	
General Practitioner consultations	44.9
Ordinary admissions	120.7
Day cases	5.2
Outpatient attendances	51.9
Prescriptions	247.2
Total costs of treating the consequences of obesity	469.9
Total direct costs	479.4
Indirect costs	
Lost earnings due to attributable mortality	827.8
Lost earnings due to attributable sickness	1,321.7
Total indirect costs	2,149.5
Grand total	2,628.9

Studies selected for baseline analysis (obtained from systematic literature review)

- a Manson JE, et al. A prospective study of obesity and risk of coronary heart disease in women. *N Engl J Med*. 1990 Mar 29;322(13):882-9.
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- n Cairney J, et al. Correlates of body weight in the 1994 National Population Health Survey. *Int J Obes Relat Metab Disord*. 1998 Jun;22(6):584-91.
- o Huang Z, et al. Body weight, weight change, and risk for hypertension in women. *Ann Intern Med*. 1998 Jan 15;128(2):81-8.
- p Walker SP, et al. Body size and fat distribution as predictors of stroke among US men. *Am J Epidemiol*. 1996 Dec 15;144(12):1143-50.
- q Rexrode KM, et al. A prospective study of body mass index, weight change, and risk of stroke in women. *JAMA*. 1997 May 21;277(19):1539-45.
- r Calle EE, et al. Body-mass index and mortality in a prospective cohort of U.S. adults. *N Engl J Med*. 1999 Oct 7;341(15):1097-105.

Appendix 7

Department of Health policies and initiatives which address obesity, diet and physical activity

Initiative	Summary
NHS Plan (July 2000)	Diet and nutrition and physical activity are important elements of the NHS Plan for improving health and reducing inequalities. Action is planned to tackle obesity and physical inactivity, informed by advice from the new Health Development Agency established in April 2000. The NHS Plan also includes action to increase fruit and vegetable consumption and work with the food industry to improve the overall balance of the diet including salt, fat and sugar in food, working with the Food Standards Agency.
Five-a-day Pilot Project	Local initiatives are underway in five pilot sites to increase consumption of fruit and vegetables across the whole community, particularly in poorer areas. Based on evidence of effective interventions, the national roll-out of the scheme will begin in 2002.
National School Fruit Scheme	The NHS Plan aims to establish a National School Fruit Scheme by 2004. Under the scheme every school child aged four to six will be entitled to a free piece of fruit each school day, as part of a national campaign to improve children's diets. The practicalities of the scheme will be examined through pilots, beginning in Health Action Zones.
Guidance on Implementing the Preventive Aspects of the National Service Framework for Coronary Heart Disease	The Health Development Agency has issued guidance covering the development of local strategies and interventions to promote healthy lifestyles, relevant to coronary heart disease prevention. This includes advice on physical activity, healthy eating and other measures to reduce the prevalence of overweight and obesity.
Healthy Schools Programme	This programme has been developed jointly with the Department for Education and Employment to improve educational achievement and, in the longer term, to improve public health and address health inequalities. The programme encourages schools to improve the health education and awareness of pupils, staff and the local community by developing healthy school activities, including those which promote healthy eating and physical activity. All Local Education Authority areas have an Education and Health Partnership to support local programmes and assist schools working towards the National Healthy School Standard.
Breakfast Clubs	Breakfast Club pilots were set up across the eight NHS Regions in 1999, with funding through to March 2001. The Department has commissioned an evaluation of the pilots from the University of East Anglia to look at the contribution breakfast clubs can make to health and educational improvement in schools, to examine their sustainability and cost, and to identify models of good practice.
Active for Life Programme	National health promotion campaign commissioned from the Health Education Authority from 1996 - 2000 to encourage more people to take part in more physical activity. The programme involved the provision of training, guidance and promotional material to health promotion units and physical activity campaigners across England, including advice on what works based on the Health Education Authority's effectiveness reviews. The campaign placed particular emphasis on activities that were accessible to all and could be built into daily living, such as cycling and walking.
The National Alliance for Physical Activity (NAPA)	NAPA was convened by the Health Education Authority, with funding and direction from the Department of Health. It met from 1996-2000 to provide a forum for debate on physical activity issues, and direction for the Active for Life programme. Members were drawn from across the physical activity world, including representatives from the main Government departments, sport, academia, the fitness industry, schools and local authorities. The group was disbanded following the closure of the Health Education Authority, but the Department is considering convening a similar group in the future.
Inter-Ministerial Group to Improve Children's Diet and Activity	The Group was set up in response to the findings of the National Diet and Nutrition Survey of Young People aged 4-18 ¹⁸ , published in June 2000. The group aims to map out cross-departmental action already taken to improve young peoples' diet and physical activity, to identify models of good practice, and to co-ordinate future projects and initiatives. The Group is chaired by Ministers from the Department of Health and the Department for Education and Employment and involves Ministers from several Government departments.
Safe and Sound Challenge	The Safe and Sound scheme encourages schools to develop initiatives to promote healthy, active and safe modes of travel to school, with cash prizes awarded to the most innovative schemes. In 2000/01, the scheme has targeted schools in socially deprived areas.
Teacher Training Guide on Safe and Active School Travel	This document explains to trainee teachers how physically active modes of travel can be taught as part of the primary school curriculum.
The Infant Feeding Initiative	Research suggests that bottle-fed babies are 50 per cent more likely to become obese than babies breast-fed exclusively for the first 3-4 months. The Infant Feeding Initiative was set up to reduce inequalities by encouraging those women least likely to breast-feed to do so.
Health Survey for England	Annual survey on the health status of the people of England, including data on physical activity, eating habits, height, weight and body shape. It provides authoritative data on the prevalence of overweight and obesity analysed by gender, age group, socio-economic status, household income and geographical region.
Systematic Review of Interventions in the Treatment and Prevention of Obesity	Review of published research commissioned by the Department from the NHS Centre for Reviews and Dissemination in 1997. The aim of the review was to inform the work of the Department by identifying the latest state of knowledge of obesity and highlighting future research needs.
Directory of Weight Management Services	Directory of local weight management programmes compiled by self-completion pro-forma sent out by NHS Regional Offices and published in March 1998. Contains details of several hundred initiatives, ranging from clinics and research programmes to buses taking overweight and obese people to leisure centres and swimming pools.
Evaluation of Weight Management Services	Analysis of 13 self-evaluations of weight management programmes, published in 1998. Concluded that successful sustained clinically significant weight loss in obese patients was rare, and that more work was needed to develop strategies to improve long term weight maintenance.

Initiative	Summary
"Fighting Fat, Fighting Fit" BBC series	Television series broadcast in early 2000 with support from the Department of Health to raise awareness of the risks of obesity and educate people about ways to achieve and maintain a healthy weight.
Exercise on Prescription	Scheme allowing patients who would benefit from physical activity to be referred by their general practitioner to subsidised exercise programmes with a trained instructor. The Department is developing a National Quality Assurance Framework for exercise referral systems to provide best practice guidelines and improve the quality of physical training provided.
Dissemination of report 'Tackling Obesity - A Toolbox for Local Partnership Action'	Document produced by Faculty of Public Health Medicine of the Royal College of Physicians providing a practical framework for developing local action plans to prevent and control obesity. The Department has paid for the toolbox to be sent to all health authorities.

Source: Department of Health

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