

**Annual Report of the Director for Public Health, Barnet
2012-13**

Prevention is better than cure

Dr Andrew Burnett

Director for Public Health, Barnet

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SUMMARY

Whilst the health of Barnet people is generally better than average we should not be content with this: we can, and should, do better. In particular, and based on evidence of effectiveness and value-for-money, I consider that we should:

- substantially reduce the prevalence of smoking amongst Barnet's residents (that is, much more than we have already);
- significantly reduce the number of people in Barnet who are overweight and who are obese; and
- improve the life chances of the above-average proportion of children living in poverty in Barnet by enabling the parents and carers of pre-school children to provide them with a better home learning environment.

In my report for 2012-13, I have focussed on ill-health prevention and done so in three areas where I consider that we can have the maximum impact on people's well-being. The first two areas, reducing the prevalence of both smoking and of overweight and obesity will have a direct impact on people's well-being. The third area, improving the home learning environment for children who live in poverty, will have an indirect impact on their well-being because this will improve their educational attainment, which is a major determinant of health. Addressing these three topics can also reasonably be expected to reduce health and social care costs and free-up resources for other activities.

Tobacco control

Over the last few years, Barnet has consistently exceeded its NHS smoking cessation target. I wish to challenge both the NHS and the council in Barnet to deliver a step-change in tobacco control and to seek to reduce the prevalence of smoking in the borough to levels similar to those in California and in Sweden. This will substantially reduce mortality and morbidity amongst the people for whom we are responsible. For example, the substantial decline in smoking prevalence in California has been associated with declines in lung cancer, heart disease and other tobacco-related illnesses. And in Sweden, reducing smoking prevalence has also reduced smoking in pregnancy, has led to a statistically significant reduction in the risk of low birth-weight babies and to a reduction in the prevalence of abdominal aortic aneurysm.

In Barnet, I recommend that we seek to reduce the number of young people taking up smoking each year; encourage and enable smokers to quit; and contribute to protecting families and communities from second-hand smoke. Helping to stop young people from starting smoking is particularly important because the perpetuation of tobacco use through successive generations is one of the major causes of health inequality.

Overweight and obesity

We have taken little action in the past in Barnet to deal with the second-most significant challenge to our population's well-being: overweight and obesity. Obesity, like smoking, is a major cause of health inequality and our work so far on reducing health inequalities will be undone if we do not also address the obesity epidemic as well. It is the complications of obesity that matter, the principle one of which is diabetes and its own principal consequences – heart disease, kidney failure and premature death. The overall risk of dying prematurely for a person with diabetes is at least double that of the risk for someone without this disease. Other complications

of diabetes include blindness and long-term reduced kidney function, both of which have severe consequences for the sufferer and significant cost implications for health and social care services.

Being overweight or obese is due to eating more than the body needs, possibly leading some to consider that overweight and obesity are self-inflicted conditions caused simply by a lack of willpower. However, there is now evidence that, in people who are significantly obese, the internal mechanisms that control the sense of satiety are automatically and permanently re-set, with the body's normal function being dysregulated such that the obese person becomes 'locked-in' to their new body weight by a powerful physiological mechanism. Such people will literally be unable to lose a significant amount of weight without specialist help, including, for those with more extreme weight problems, surgical intervention. It is important to note that there is good evidence that surgery for obesity results in greater, and more sustained, weight loss than conventional treatments in both moderate and severe obesity, with reductions in conditions such as diabetes and high blood pressure and improvements in quality of life, and a reduction in long-term mortality. It is especially noteworthy that 85% of the people reported in the National Bariatric Surgery Register who had diabetes at the time of surgery for obesity had no indication of this disease at two-year follow-up and that other studies have shown this benefit to persist for many years. Principally because of the persisting benefits of surgery for obesity, it is one of the most cost-effective interventions for it. Indeed, modelling we have undertaken shows that, unequivocally, surgery for obesity in people who have already developed type 2 diabetes saves health service costs (and by implication, social service costs) after some five years. Not funding this treatment would increase health and social care costs after a similar period of time as well as worsen people's wellbeing.

I am particularly concerned that 10-11% of children who start school in Barnet are already obese and, even more worryingly, more than 17% are obese in Year 6. Not only is this likely to presage an increasing proportion of obese adults, it is likely to mean that the complications of obesity are likely to affect people at an increasingly younger age. It is noteworthy that the prevalence of diabetes is already above-average in Barnet.

In Barnet, I recommend that we prioritise the prevention and the management of overweight and obesity. This will require a multi-faceted approach and I have provided more detail of this in this report.

The impact of child poverty on educational achievement and consequent health

Finally, the impact of child poverty on educational achievement and consequent health is an important area for action in Barnet. There is an above-average proportion of children living in poverty in Barnet (23.7% vs 20.9% nationally) and numerically more children in Barnet live in poverty than do in, for example, either Islington or Camden, which are both boroughs with higher proportions of deprivation than Barnet.

There is substantial evidence that people in higher socioeconomic groups generally experience better health and there is strong evidence that the relationship between educational achievement and health shows a similar gradient: people with better educational achievement generally enjoy better health. Children born into families with high socioeconomic status, whether their cognitive scores as babies are, on average, high or low, generally have higher cognitive scores by the age of about ten years. In contrast, those born into lower socioeconomic group families, on average, have lower cognitive scores at the age of 10 years, irrespective of their scores at ten months. Such educational inequalities persist at secondary age: children eligible for

free school meals are half as likely to achieve 5 GCSEs A*-C compared to those not eligible for free school meals. For many, we can expect these educational achievement differences to translate into health inequalities in later life. Importantly, there is a large body of evidence that children cannot take good advantage of their school-based education if their pre-school home learning environment is inadequate, but there is also good evidence that this is remediable.

Various studies have shown that early childhood intervention programmes, such as providing parental support and training, learning activities and structured experiences for children and enhancing the home learning environment lead to statistically significant improvements, including improved developmental and intelligence scores and better cognitive development, creative thinking and concept development. There is also evidence that interventions that supplement the early lives of children of disadvantaged families promote schooling, reduce crime, foster work productivity and reduce teenage pregnancy, and that these interventions are cost-effective.

The most significant of these interventions is for parents and carers to read to and to read *with* their children. Enabling parents and carers to be able to do this has been shown to lead to sustained, statistically significant, improvements in children's reading and writing skills and to better behaviour in school as well as greater academic achievement. Thus, based on a good evidence-base, helping parents of families living in poverty in Barnet to improve both their parenting skills and the home learning environment can reasonably be expected to improve children's success at school and to improve their life chances and thus prospects for future good health.

It is also important to recognise that smoking is a particular issue for families living in poverty because a much higher proportion of disposable income is spent on tobacco in such families. Crucially, there is evidence that low-income households where parents smoke are much more likely to lack adequate basic amenities, such as food, shoes, coats, than non-smoking parents on Income Support. Targeting families living in poverty in non-stigmatising ways to enable smokers to quit will improve their health directly and make more money available for both basic amenities and an improved home learning environment for children.

In Barnet, I recommend that we expand our current work on child poverty to enable a much higher proportion of parents and carers of children living in poverty to be able to provide a much more effective home learning environment for their children.

Taking action to improve people's health in Barnet further

In each of the three main sections of this report (tobacco control, overweight and obesity, and child poverty) there are specific sections looking at the relevance to Barnet and what I recommend we should do. I hope that these, and the underlying evidence-base presented here, will be useful in enabling actions to improve the health of Barnet's people still further.

Dr Andrew Burnett
Director for Public Health, Barnet
April 2012

Annual report of the director for public health, Barnet

Prevention is better than cure

1 Introduction

In my report on health in Barnet for the year 2012/13, I wish to emphasise the importance of all of us taking actions to prevent avoidable illness and disability at every opportunity.

The aphorism “An ounce of prevention is better than a pound of cure” has been attributed to Benjamin Franklin in relation to his organisation of the Philadelphia Union Fire Company in 1736.¹ Few would argue against the desirability of preventing fire rather than waiting for one to occur and then trying to put it out. Franklin’s observation is particularly apposite in the context of health services and, to some extent, to social care and some children’s services, where it seems that we spend so much time ‘fire-fighting’ that we probably feel we have little or no time for prevention.

If we amend Franklin’s phrase to “A penny of prevention is better than a pound of cure” then we remind ourselves that preventing things that are avoidable not only reduces or eliminates some types of ill-health and disability and associated suffering, but can save money too. The potential for this in terms of NHS costs was writ large in 2004 by Derek Wanless in his exhortation for a shift from a national sickness service to a national *health* service that was ‘fully engaged’ in prevention. The figures in his report² are now out of date, but the principle remains: if we want to make sustainable financial reductions in health and social care costs then we have to do much more to prevent avoidable conditions occurring. Wanless depicted this in relation to the proportion of the country’s gross domestic product required for NHS services in three scenarios of ‘slow uptake’, ‘solid progress’ and ‘full engagement’ in prevention. This is shown in Figure 1, which is taken from his report, and shows that only with ‘full engagement’ of both public services and the public themselves can we expect the amount of funding needed for health services to level-off. I see no reason why this should not also apply to social care and children’s services costs and that, with an increasing proportion of elderly people in the population and the present economic situation, Wanless’s exhortation for our much greater involvement in preventing avoidable illness and disability is even more important now than it was in 2004.

1.1 Context

Overall, death rates from the main killers, heart disease and stroke, cancer, and respiratory disease, are dropping in Barnet and, as described in the Barnet Joint Strategic Needs Assessment,³ the health of the people of Barnet is generally good. However, there are significant health inequalities and, as identified in the *Finding the Five Thousand* project,ⁱ there are a large number of people in Barnet with unrecognised and, crucially, remediable, risk factors for certain diseases. There are also important inequalities in health in the borough, closely correlated with deprivation, and reflected in differences in life expectancy.

ⁱ This is described in the current Barnet Joint Strategic Needs Assessment

For example, the difference in life expectancy for boys born in the most deprived parts of the borough compared with those in the most affluent is seven years (five years for girls) and this difference is statistically significant,⁴ as shown in Figure 2.

Figure 1: Wanless’s prediction in 2004 of the impact of different levels of engagement in prevention on the proportion of gross domestic product required for the NHS. (The figures are now out of date but the vital message remains: prevention is cheaper than cure and frees resources for other things)

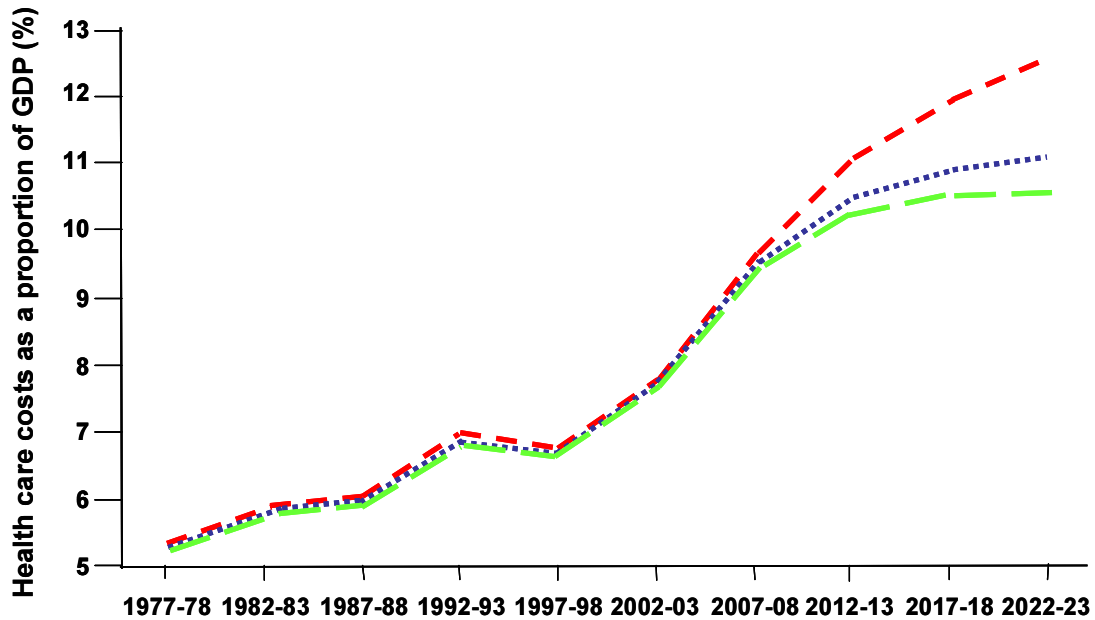
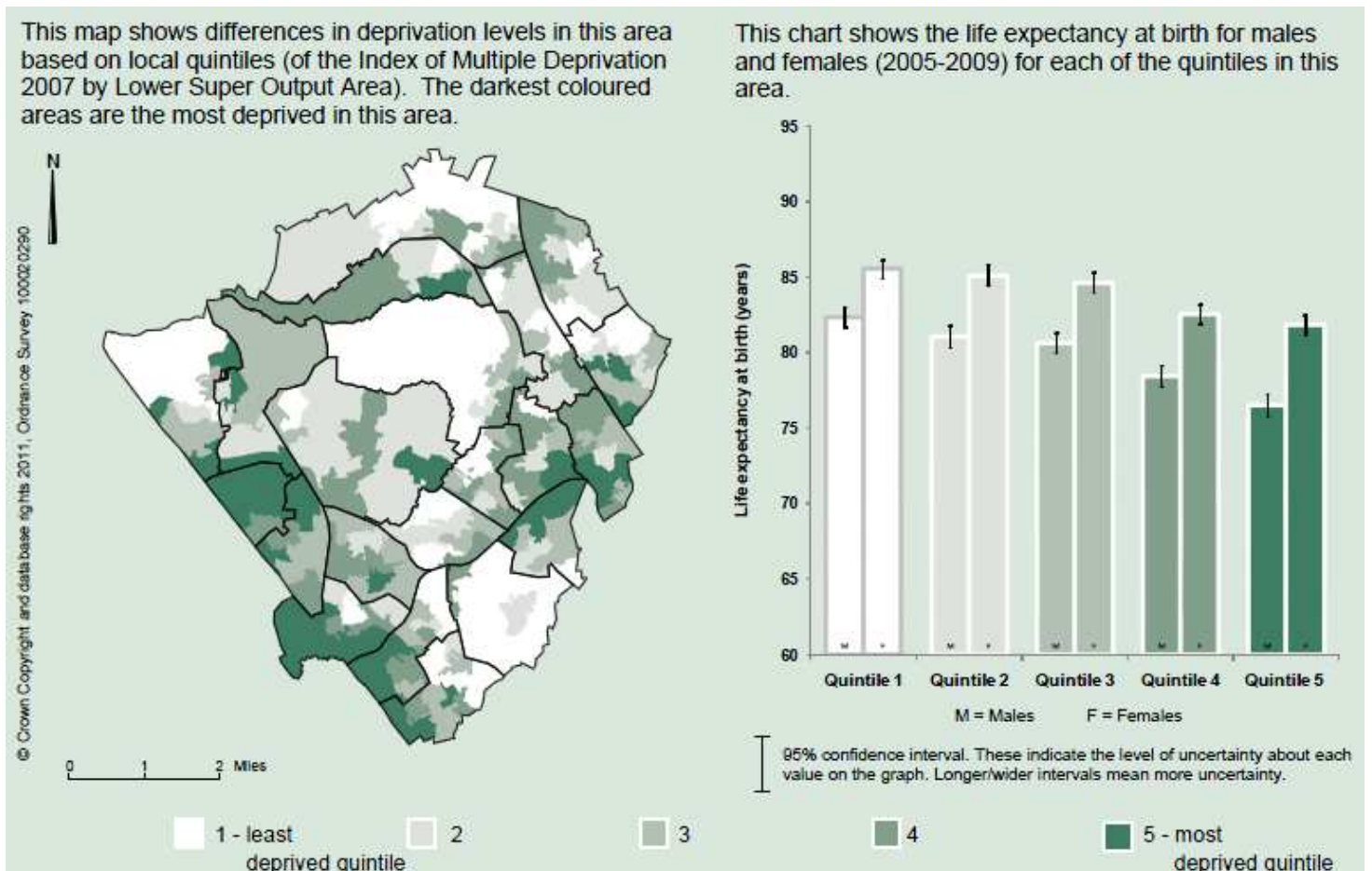
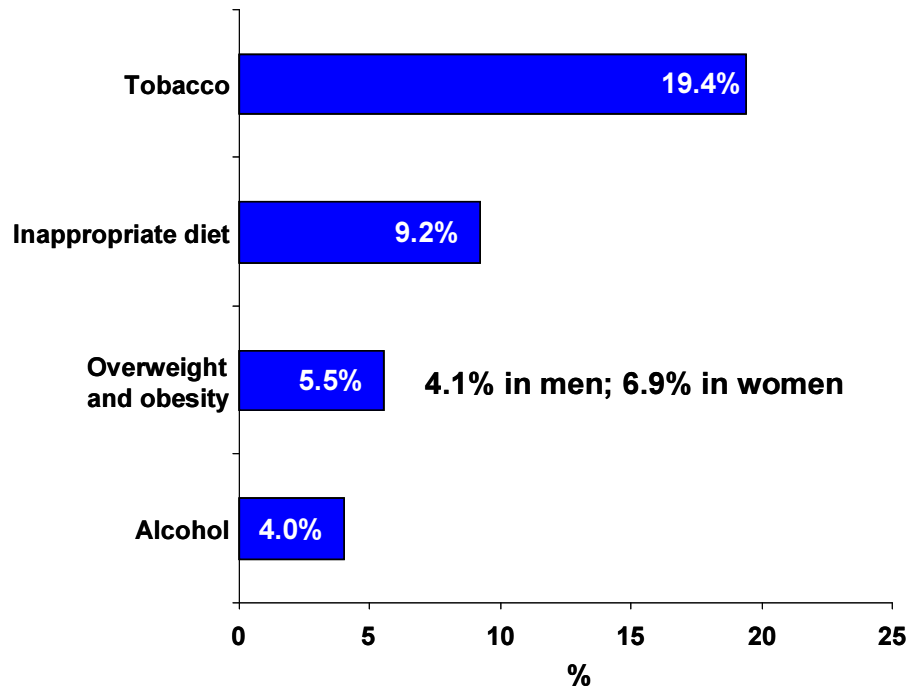


Figure 2: Differences in male and female life expectancy at birth in different parts of Barnet



Such differences are not inevitable nor are they immutable. As discussed in section 2.3, health inequalities can be reduced, and, for premature cardiovascular disease mortality, have been in Barnet. The important point is that there is scope in Barnet to reduce avoidable disease further, and to reduce both the associated suffering and the costs. For example, in a recently published review of the epidemiology of a wide range of cancers, it was identified that about one third overall can be attributed to just four lifestyle choices.⁵ This is depicted in Figure 3, taken from the report.

Figure 3: The proportion of cancers in the UK attributable to different exposures



Cancer is not the only disease, with cost implications for both health and social care services, that is a consequence of risky lifestyle choices. Heart disease and stroke, aortic aneurysm, peripheral vascular disease, respiratory disease, osteoarthritis, age-related macular degeneration, diabetes, osteoporosis, liver failure and upper gastrointestinal diseases are all more likely to occur in people who smoke, or who are overweight or obese, or who have an inappropriate diet, or who take insufficient exercise, and/or who misuse alcohol.

Most of these conditions occur more frequently in people living in deprived areas. Deprivation, for many, has its origins in child poverty and so does poor health. For example, three-year olds in families with a combined income of less than £10,000/year are two-and-a-half times as likely to develop life-limiting chronic illness as are three-year olds in families with an income of more than £52,000/year.⁶ They are also twice as likely to develop asthma and nearly three times as likely to develop a mental disorder.⁷

The key areas of prevention that I wish to draw to the attention of Barnet Council, the Barnet Clinical Commissioning Group, education providers and health and social care providers for the purposes of service development in 2012/13 and beyond are:

- tobacco control – smoking avoidance and smoking cessation;
- overweight and obesity; and
- the pre-school educational aspects of child poverty.

I discuss each of these in the next three sections.

2 Tobacco control

2.1 Background

In a publication in 2004, Doll and Peto, the doctors who first brought attention to the significant harms to health caused by tobacco use, published the findings of a 50-year prospective study of the hazards of cigarette smoking in doctors and the extent of the reduction in risk on stopping smoking at different ages in terms of premature mortality.⁸ They found that, in this relatively affluent group (in whom one would therefore not otherwise expect high mortality rates), that:

- men born in 1900-1930 who continued to smoke cigarettes died on average ten years younger than lifelong non-smokers;
- stopping smoking in this group at 60, 50, 40 and 30 years of age gained, respectively, 3, 6, 9 and 10 years of life expectancy;
- the probability of dying between the ages of 35 and 69 years in this group were 42% in smokers and 24% in non-smokers – a two-fold increase in risk of death in smokers.

Put another way, it is unequivocally best not to start smoking, but it's never too late to stop.

2.2 Is smoking cessation cost effective?

Enabling people to stop smoking is one of the most cost-effective interventions to improve health.

Based on prices in 1998, the most expensive NHS smoking intervention (specialist smoking cessation support) cost £873 per life-year saved, whilst a review of more than 310 other medical interventions identified that the median societal cost for these was £17,000 per life year gained.⁹ And a review of the cost-effectiveness of implementing the American Agency for Health Care Policy and Research guidelines on smoking cessation found that smoking cessation is 'extremely cost-effective', with a cost per QALYⁱⁱ of \$1,108–\$4,542 (£705–£2,891) with the more intensive interventions being more cost-effective, suggesting that 'greater spending on interventions yields more net benefit'.¹⁰

A more recent systematic review of nine randomised controlled trials of smoking cessation in patients with chronic obstructive airways disease, that is, in people with established smoking-related morbidity, found that, compared with usual care, the costs per QALY of minimal counselling, intensive counselling and pharmacotherapy were, respectively, €16,900, €8,200 and €2,400 (£14,000, £6,856, £2,006).¹¹ The

ii Quality adjusted life years (QALYs) are a measure of cost per increase in utility that can be used in assessing the value-for-money of a clinical intervention. (A 'utility', from an economics perspective, is a measure of relative satisfaction or benefit, and thus is something that can increase or decrease. Cost-utility in a health care context is an economic evaluation of the degree to which quality of life is improved per pound spent using measures such as QALYs). A QALY is based on the number of years of life that would be added by the intervention. Each year in perfect health is assigned the value of 1.0 down to a value of 0.0 for death. If the extra years would not be lived in full health, for example if the patient would lose a limb, or be blind or have to use a wheelchair, the extra life-years are given a value between 0 and 1 to account for this. In some instances, a negative value is applied, when the health state is considered to be 'worse than death'.

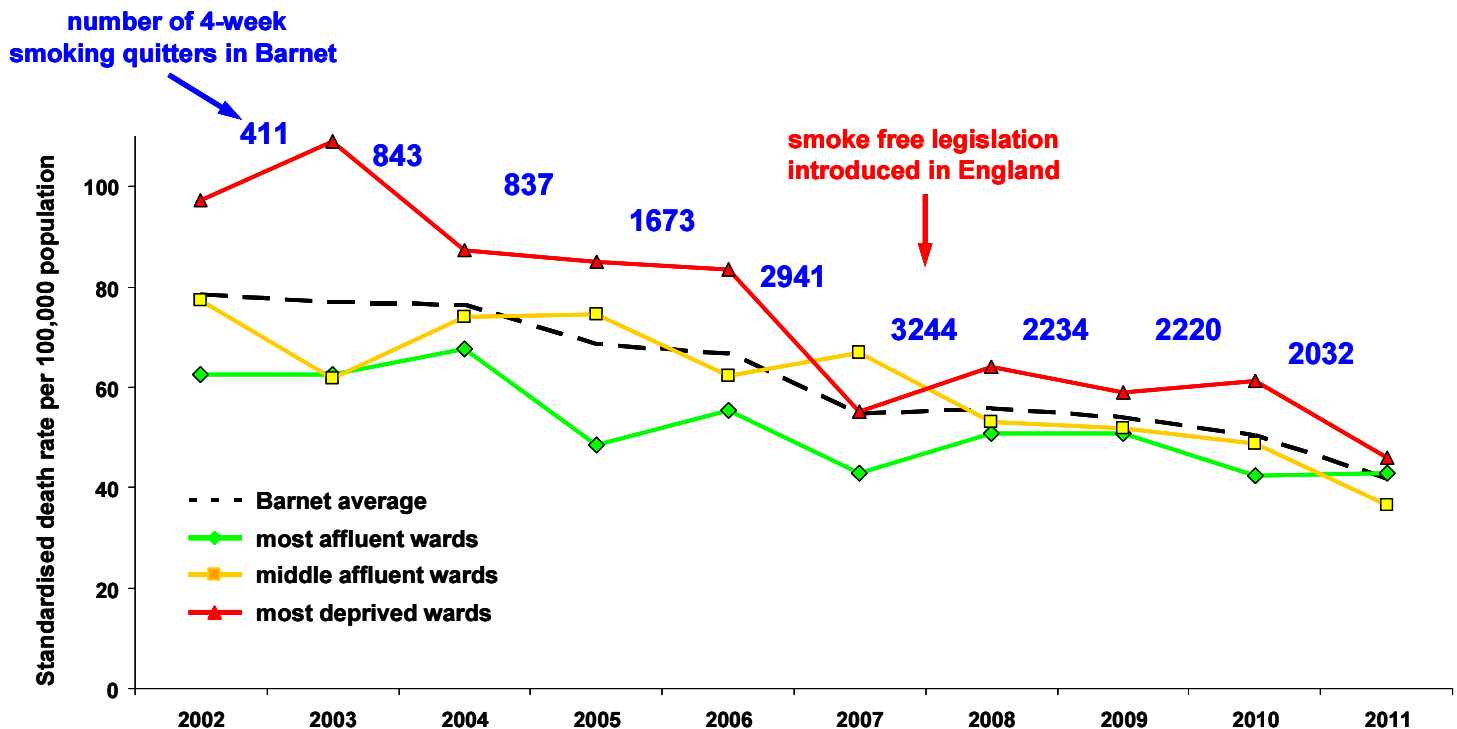
threshold normally used by the National Institute for Health and Clinical Excellence for cost effectiveness is £20,000-30,000 per QALY.

On this basis, spending money on smoking cessation, especially on more intensive (specialist adviser) interventions, will reap benefits in terms of improved wellbeing, reduced health inequalities and more effective use of scarce resources.

2.3 How is this relevant in Barnet?

Currently, some 350 people die each year of smoking-related diseases in Barnet (based on pooled data for the years 2007-09).⁴ This is down from 440/year as reported by the London Health Observatory in 2001.¹² This reduction is encouraging, and consistent with other data, for example the greater reduction in deaths from cardiovascular disease (heart attack and stroke) amongst people living in the most deprived parts of the borough in recent years. In Barnet, we have concentrated smoking cessation activity especially in these most deprived areas and it is plausible that the reduction in death rates in these places, which has closed this health inequality gap, is predominantly attributable to this. This is shown in Figure 4.

Figure 4: Death rates from cardiovascular disease in Barnet GP-registered patients aged under 75 years in deprivation tertiles



Prior to 2002, there were 20 electoral wards in Barnet, rather than the current 21, so the data were collected differently then. However, these older data show that there has been a substantial and sustained difference in death rates from cardiovascular disease between people living in the most affluent parts of the borough and the most deprived. These differences have remained unchanged from the early 1990s until quite recently.

It is noteworthy that the association between increasing smoking quit rates and decreasing cardiovascular disease death rates some six to twelve months later has also been found elsewhere. For example, a study in Montana, USA, examined the impact of a local law banning smoking in workplaces and public places and found that, during the six-month period that the law was in effect that there were 16 fewer

hospital admissions for heart attack compared with the same period in the previous year when there were 40 (which is a 40% reduction).¹³ This decrease was statistically significant. Further, a review of hospital admissions for acute coronary syndromeⁱⁱⁱ in Scotland following the introduction of smoke-free legislation there found an overall reduction in admissions of 17% in the year following the introduction of legislation compared to the period preceding it, in contrast to a 4% drop in England over the same period when there was no such legislation in place.¹⁴ And in England, following the subsequent introduction of smoke-free legislation, and having adjusted for secular trends and variations in population size, there was a statistically significant 2.4% reduction in admissions to hospital for heart attack attributable solely to the legislation.¹⁵ In Barnet, the impact on costs for emergency hospital admissions for heart attack in the first year following smoke-free legislation has been estimated to be a saving of £61,000 (estimated range £17,000-£104,000).¹⁶ (Note that this estimate only applies to the immediate hospital costs of dealing with a heart attack and not to the other health conditions associated with smoking nor to the social care costs associated with these.)

Smoking tobacco increases the risk of heart attack but this risk falls rapidly in smoking quitters.¹⁷ The effects of tobacco smoke on the lining of blood vessels and on platelets (increasing the risk of the development of blood clots) occurs within 30 minutes of exposure and is nearly as great in people inhaling second-hand smoke ('passive smoking') as it is in smokers.^{18,19,20} The effect on death rates shown in Figure 4 is likely to be related to a combination of increasing smoking cessation activity in Barnet in the preceding years and the introduction of smoke-free legislation in 2007, but it is important to note that the greater decreasing trend in cardiovascular deaths in Barnet follows smoking cessation activity for some years prior to this.

But could the closure of this health inequality gap be related to other factors? The most likely ones are changes in the prescribing of drugs for raised cholesterol, for high blood pressure and for diabetes and/or an increase in surgical procedures to manage acute coronary syndrome.

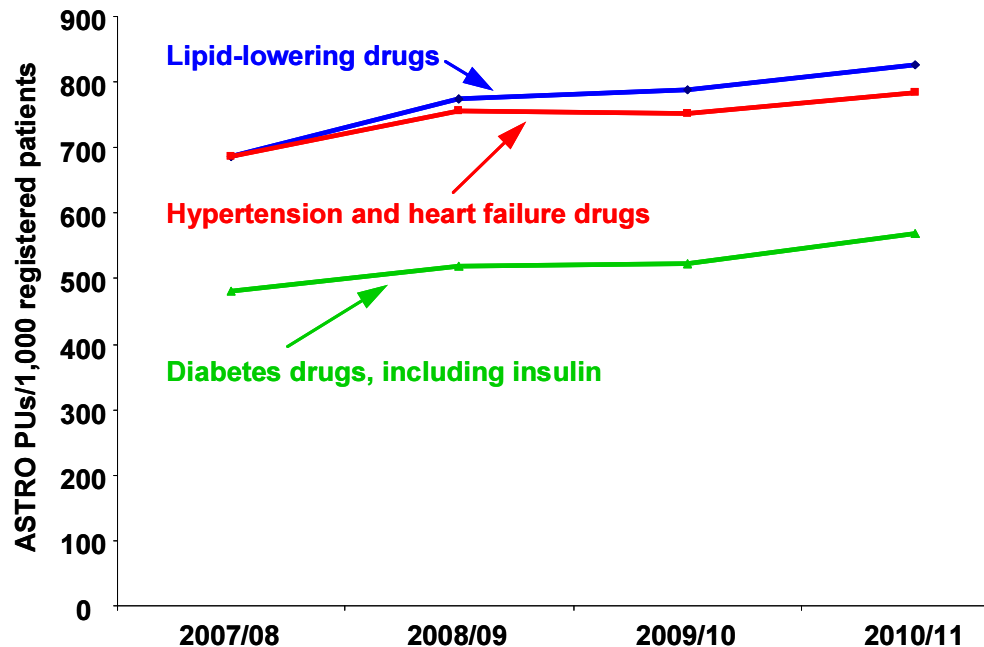
Figure 5, Figure 6 and Figure 7 present data showing trends in these activities in recent years. (There are no data available for years earlier than shown in these graphs.)

Figure 5 shows Barnet GP prescribing of drugs, across the borough, for raised cholesterol (lipids), high blood pressure (hypertension) and heart failure, and for diabetes. All of these conditions increase the risk of death from heart attack and stroke. Whilst there is a trend of more of these drugs being prescribed, their impact generally takes some time to be seen and the rate of increase of prescribing does not correspond to the rate of decrease that we see in deaths in people living in the most deprived areas in Barnet as shown in Figure 4. Indeed, as the prescribing trends shown in Figure 5 apply across the borough, if there were a significant early effect of this prescribing trend we would expect to see a decrease in deaths from cardiovascular disease amongst all people in Barnet. However, Figure 4 shows us that death rates from cardiovascular disease amongst people living in the more affluent parts of the borough were relatively static during the years 2007-2010. I am not suggesting that these drugs do not reduce the risk of death from cardiovascular

iii Acute coronary syndrome covers a spectrum of unstable coronary artery disease ranging from unstable angina to a complete heart attack. All have the same origin, that is the formation of a blood clot on a narrowed coronary artery. Management is similar, depending on the severity of the condition at the time of presentation

disease. There is good evidence that they do and their use should be encouraged. But their use does not seem to explain the closure of the health inequality gap that is shown in Figure 4.

Figure 5: Barnet GP prescribing of various drugs that can be expected, over time, to have an impact on the incidence of cardiovascular disease



In Figure 6 and Figure 7 we can see what has happened to hospital admissions for heart attack and stroke and for non-drug interventions to treat heart attack in Barnet GP-registered patients in recent years. These data are for people living in all parts of the borough. If the reduction in deaths shown in Figure 4 were due to hospital treatment, including non-drug interventions, then we might expect to see an increase in the number of admissions and, certainly, an increase in the number of procedures being undertaken. But what we see is actually are relatively static hospitalisation and intervention rates from 2005 to 2009, with a large decrease in 2010. We might also expect to see a decrease in deaths amongst people living in the more affluent parts of the borough, but we do not. Again, I am not suggesting that these interventions do not reduce the risk of death from cardiovascular disease. There is good evidence that they do and their use should be encouraged as well. But their use does not seem to explain the closure of the health inequality gap that is shown in Figure 4 either.

Figure 6: Hospital admissions for heart attack and stroke in Barnet GP-registered patients

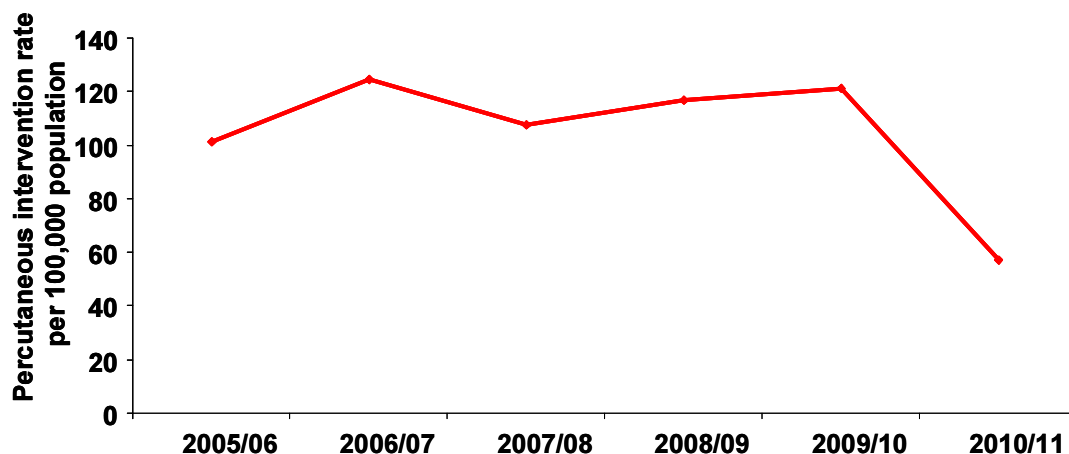
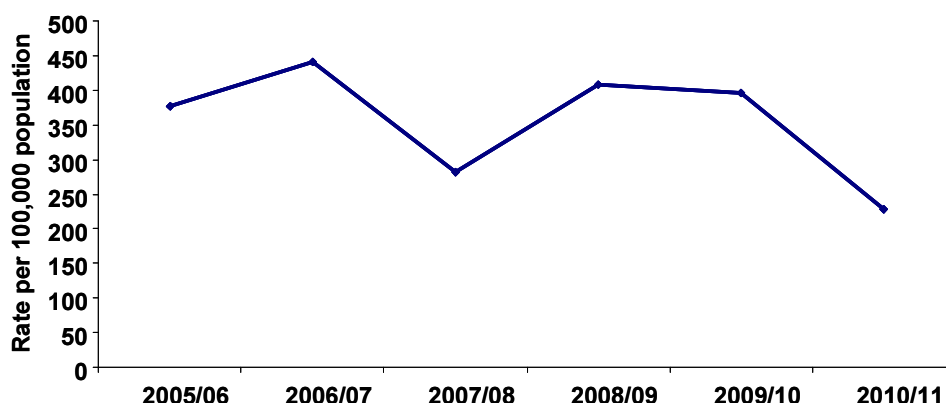


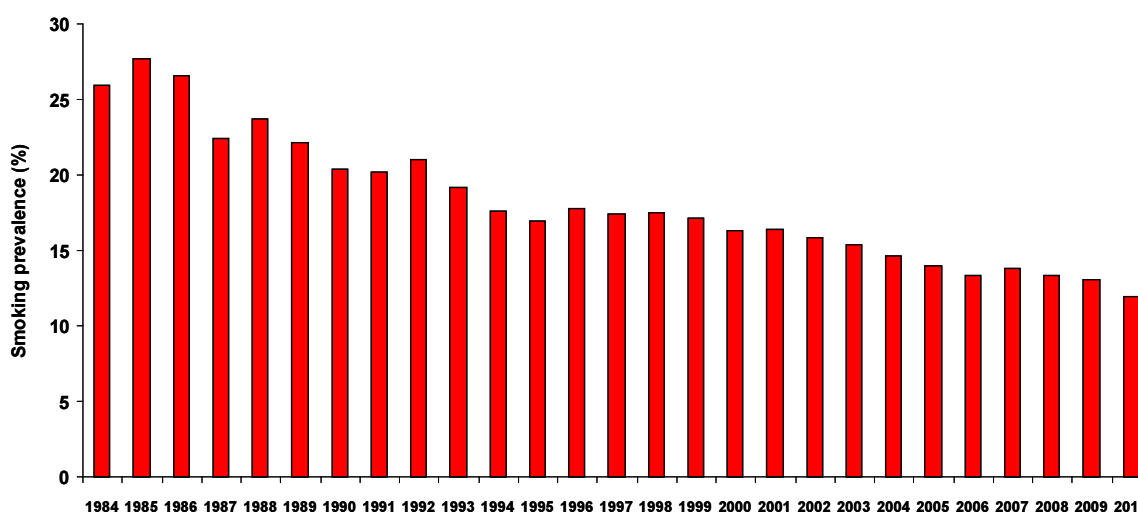
Figure 7: Cardiac interventions in Barnet GP-registered patients



On the basis of the currently available evidence, the most likely explanation of the closure in the health inequality gap for cardiovascular disease in Barnet residents aged under 75 years would seem to be a combination of all of these factors but with the greatest effect being due to people quitting smoking.

Is this plausible? If we look at what has happened elsewhere in the World, notably in California, where smoking prevalence has been reduced very substantially over the years, then I suggest that it is. California has reduced its smoking prevalence substantially, from just under 26% in 1984 to just under 12% in 2010.²¹ This is shown in Figure 8. (By contrast, Barnet's smoking prevalence amongst adults was 16.6% in 2009/10.⁴) According to the California Department of Public Health, the substantial decline in smoking prevalence in the state since tobacco education efforts started in 1988 have been associated with declines in lung cancer, heart disease and other tobacco-related illnesses.^{22,iv} This is born out in an independent study which found that since the introduction of California's approach to smoking, the prevalence of both smoking and deaths from heart disease have dropped at a statistically significantly greater rate in this state than in the rest of the USA.²³

Figure 8: Smoking prevalence in California



iv The State of California supports local health departments and community organisations to help reduce smoking, it supports 'aggressive' media campaigns and provides tobacco-related education and surveillance. Since the introduction of the California Tobacco Control Program in 1988, it is estimated that more than one million lives have been saved and \$86bn-worth of savings in health care costs have been made. See <http://www.cdph.ca.gov/Pages/NR11-031.aspx> (accessed 27 January 2012)

The situation in Sweden is also impressive. Sweden has one of Europe's highest smoking cessation rates and one of the lowest prevalences of smoking in the industrialised world (11% in men, 14% in women).²⁴ Table 1, taken from a study comparing Sweden with other European Union countries, predicts the impact on smoking-attributable deaths if these other countries were to achieve the Swedish smoking prevalence.²⁵ (Note that Table 1 only refers to men aged 25 years and over. The paper from which it is taken includes an equivalent table for women. The predicted benefits are similar in women.) This potential benefit is striking: If we achieved a smoking prevalence in the UK equivalent to that of Sweden, we would reduce annual smoking attributable deaths by some 42%, that is a reduction in such deaths by nearly 45,000 amongst men aged 25 years and over each year and 15,500 in women, a 41% reduction. It is also noteworthy that there is evidence that Sweden's work in reducing smoking, which has also reduced smoking in pregnancy, has led to a statistically significant reduction in the risk of low birth-weight babies,²⁶ and to a statistically significant association between reduction in smoking prevalence and the prevalence of abdominal aortic aneurysm that was sufficient to suggest that the thresholds for screening could be raised and in future confined to smokers.²⁷

2.4 What do we need to do in Barnet?

There are clear benefits from smoking cessation. There has been a demonstrable benefit from this in Barnet in recent years, and there is good evidence that increasing our efforts to control tobacco consumption (not just support smoking cessation) will lead to significant improvements in well-being and reduce health and social care costs.

Following Department of Health guidance and declared intentions,²⁸ in Barnet I consider that we should aim to:

- stop the inflow of young people recruited as smokers;
- motivate and assist every smoker to quit; and
- protect our families and communities from tobacco-related harm.

We cannot do all of this alone, but we can make a significant contribution by:

- enforcement of regulations and law and trading standards concerning tobacco sale and tobacco use;
- working with schools and community groups;
- training and encouraging all front-line NHS and local authority personnel to use all opportunities to encourage people not to start smoking and to encourage and sign-post those who do to smoking cessation services;
- ensure our contracts with providers actively promote reducing the prevalence of smoking; and
- improving smoking cessation performance overall, but especially amongst pregnant women and in families living in poverty.

Undertaking work to stop young people from starting smoking is particularly important because:

- the perpetuation of tobacco use through successive generations is one of the major causes of health inequalities;²⁸ and
- whilst it might be argued that people have a right to choose to smoke, the majority of smokers start to do so before the age of 18 years^{29,30} and –

- nicotine is an addictive drug and tobacco use is its main means of self-administration,³¹
- the pharmacological and behavioural characteristics that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin and cocaine,³² and thus it is difficult to argue that it is someone's free choice to be dependent on a substance as addictive as heroin or cocaine that they became addicted to when under the age of 18 years; most adult smokers say they started smoking regularly before they turned 18.³³

We therefore need to try hard to reduce the prevalence of smoking in children and young people as much as possible if we are to improve health and wellbeing in the people of Barnet.

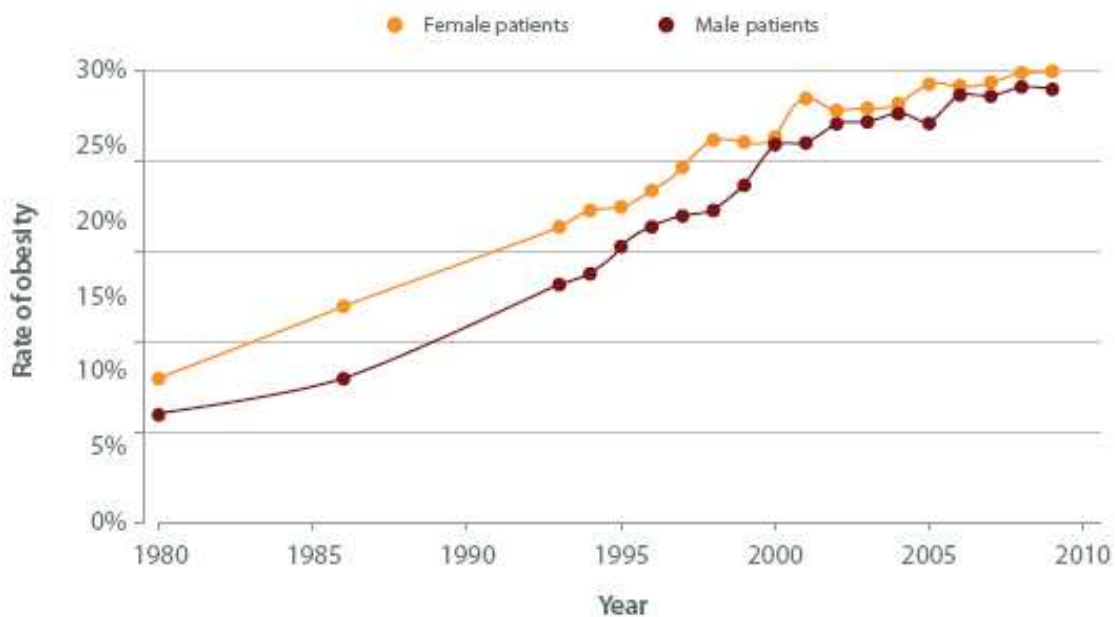
Table 1: Smoking prevalence and smoking-attributable deaths among men aged 25 years and over in the European Union in 1999

Country	At country-specific smoking prevalence				At Swedish smoking prevalence		
	Population (millions)	Smokers (millions)	Proportion of smokers in population (%)	Smoking-attributable deaths	Smokers (millions)	Smoking-attributable deaths	Reduction in smoking-attributable deaths (%)
Austria	2.75	1.28	47	10,897	0.54	5,839	46
Belgium	3.45	1.57	45	16,227	0.68	8,014	51
Denmark	1.81	0.63	35	8,236	0.36	4,041	51
Finland	1.70	0.69	41	5,293	0.34	3,723	30
France	19.16	7.72	40	63,153	3.80	43,913	30
Germany	28.77	11.47	40	112,274	5.66	63,362	44
Greece	3.60	2.19	61	22,131	0.71	8,850	60
Ireland	1.10	0.44	40	4,462	0.22	2,293	49
Italy	20.30	7.07	35	76,234	3.99	47,797	37
Luxembourg	0.15	0.06	38	475	0.03	304	36
Netherlands	5.38	1.99	37	17,345	1.07	11,146	36
Portugal	3.16	1.48	47	11,082	0.62	7,204	35
Spain	13.43	6.36	47	53,681	2.65	31,172	42
Sweden	3.01	0.59	19	7,396	0.59	7,396	–
United Kingdom	19.61	6.97	36	76,771	3.88	44,793	42
TOTAL	127.38	50.45	40	485,657	25.14	289,793	40

3 Overweight and obesity

The Health Survey for England report shows that overweight and obesity has increased substantially and we are rapidly approaching a situation where two thirds of the population of England will be will be overweight or obese.^{34,v} The trend in obesity in England is shown in Figure 9, which is taken from data from the Health Survey for England. Obesity substantially increases the risk of developing a number of conditions, which themselves create significant health risks. The most significant of these is diabetes; it has been estimated that obesity reduces life expectancy by some nine years and accounts for 30,000 deaths in the UK each year.³⁵ Obesity therefore has significant implications for both health care services as well as well-being.

Figure 9: Changes in obesity in England over time



It is important to note that whilst the substantial increase in obesity in the UK in the last 20 years can be attributed in large part to reductions in physical activity (as depicted by the pictures of commuters at different times in Figure 10) and to changes in the type of food being eaten (with a major shift from carbohydrates to fat consumption) there is little evidence supporting the efficacy of health education programmes within the general population; behaviour modification is required in addition to education programmes.³⁸ And for people who are obese, behaviour modification – in whatever guise it may take – probably does not have much impact either. For example, a trial of 76 obese women with a mean age of 42 years and a mean weight of 106kg, randomly allocated to receive either a very low calorie diet alone, behaviour therapy alone, or both in combination, found whilst that statistically significantly more women maintained their full end-of-treatment weight losses in the

v The body mass index (BMI), which is the most commonly used way of measuring someone's relative weight and height, is calculated by dividing weight (in kilograms) by the square of the height (in metres). Someone with a healthy weight has a BMI in the range 18.5-24.9. A BMI of 25-29.9 is defined as being overweight. 'Class I obesity' is defined as a BMI of 30-34.9, 'Class II obesity as a BMI of 35-39.9, and 'Class III' or 'morbid' obesity a BMI of 40 or greater

By way of example, someone who is 5'9" tall (1.75m) and who weighs 12st 7lb (79.63kg) has a BMI of 26 and is clinically overweight. If this same person weighed 14st 13lb they would have a BMI of 31 and be clinically obese

behaviour group alone and the combined behaviour-very low calorie diet group this outcome was found in only about one third of participants and overall, weight loss reduced at 1-year and at 5-year follow-up.³⁶ This suggests that calorie restriction alone is insufficient to enable significant weight loss and that whilst behaviour therapy can help, only a modest proportion of people benefit and even then, the weight loss is often not maintained.

Figure 10: Changes in our levels of everyday physical activity, such as how we get to work, have contributed to the increased prevalence of obesity



Why might this be? Whilst being overweight or obese is due to eating more than the body needs,^{vi} possibly leading some to consider that overweight and obesity are self-inflicted conditions simply caused by a lack of willpower, there is now evidence that, in people who are significantly obese, the internal mechanisms that control the sense of satiety are automatically and permanently re-set, with the body's normal function being dysregulated such that the obese person becomes 'locked-in' to their new body weight by a powerful physiological mechanism.³⁷

There are two important considerations in the context of this re-setting of the internal controls that help us to regulate the amount that we eat. The first is that people with a normal weight and those who are overweight can, with not too much difficulty, vary their weight voluntarily by small amounts. But for an obese person to vary their weight by a proportionately similar amount requires a substantially greater change in weight; this is no simple matter and many people who are significantly obese are most unlikely to respond to non-surgical treatments for their obesity.³⁷ The second reason is that it is important to encourage and enable people to manage overweight before it develops into obesity.

3.1 Why does obesity matter to the health and social care economy?

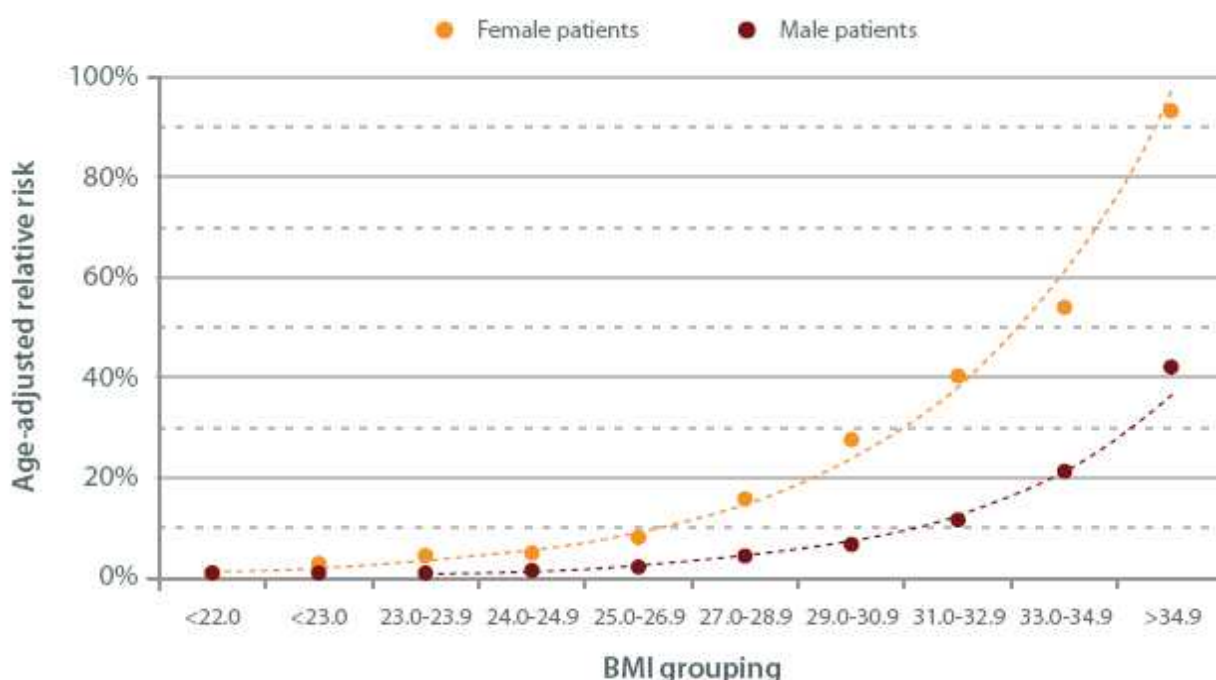
Obesity is significant because of the substantially increased risk of diseases that it causes. This has an impact on health inequalities as well as on health and social care costs. The most significant condition associated with obesity diabetes. The first report of the National Bariatric Surgery Register estimates that treating the consequences of obesity costs the health economy in England some £5bn each year

vi We take in energy in what we eat and drink. We use up energy in what we do physically. If we take in more energy than we use up then the body stores it as fat.

and that this is likely to double in real terms by 2050.³⁷ A major component of this cost is the management of diabetes and its consequences; diabetes is a serious, life-shortening condition. The National Bariatric Surgery Register report shows that there is almost an exponential increase in the incidence relative risk of developing diabetes with increasing weight, as shown in Figure 11~~Error! Reference source not found.~~, taken from the report. Diabetes increases the risk of premature death, especially from cardiovascular disease, in addition to the development of conditions such as peripheral vascular disease and blindness.

Overall, taking the risks of diabetes and the other life-shortening conditions associated with obesity into account, it has been estimated that obesity reduces life expectancy by some nine years and accounts for 30,000 deaths in the UK each year.³⁸

Figure 11: The age-adjusted risk of developing diabetes with increasing body mass index^{39,40}



Guh and colleagues undertook a detailed analysis of a large number of published studies of the diseases associated with overweight and obesity in order to estimate the the incidence of a variety of conditions in relation to overweight and to obesity.⁴¹ The results are shown in

Table 2. The key points to note are:

- whilst most findings were statistically significant (denoted in Table 2 with an asterisk), that is, these findings were unlikely to have occurred by chance, those that were not found to be statistically significant may have been so because the number of people involved were small;
- in most instances, even being overweight increases the risk of developing each of the 18 conditions reviewed;
- in many instances, the relative risk of overweight and of obesity in relation to the 18 diseases reviewed was greater for women than for men; and
- the greatest risk of both overweight and of obesity is that of developing Type 2 diabetes.

Table 2: The incidence rate ratios^{vii} of various conditions occurring in people who are overweight and obese

Condition	Men		Women	
	Overweight	Obese	Overweight	Obese
Breast cancer	–	–	1.13*	1.30*
Endometrial cancer	–	–	1.15*	1.42*
Ovarian cancer	–	–	0.61	1.35
Colorectal cancer	1.88*	2.93*	1.25*	1.55*
Oesophageal cancer	1.15	1.20	1.13	1.21
Kidney cancer	1.40*	1.82*	1.82*	2.64*
Pancreatic cancer	1.28	2.29*	1.24	1.60*
Prostate cancer	1.14	1.05	–	–
Type 2 diabetes	2.40*	6.74*	3.92*	12.41*
High blood pressure	1.28*	1.84*	1.65*	2.42*
Stroke	1.23*	1.51*	1.15*	1.49*
Coronary heart disease	1.29*	1.80*	1.72*	1.80*
Congestive heart failure	1.31	1.79*	1.27	1.78*
Asthma	1.20*	1.43*	1.25*	1.78*
Chronic back pain	1.59*	2.81*	1.59*	2.81*
Osteoarthritis	2.76*	4.20*	1.80*	1.96*
Pulmonary embolism	1.91*	3.51*	1.91*	3.51*
Gallbladder disease	1.09	1.43*	1.44*	2.32*

* statistically significant increased risk

The authors of this comprehensive estimate of the risks to people who are overweight and people who are obese developing one or more of these 18 conditions concluded that their findings confirmed that overweight and obesity “carry a profound health burden and will have a significant impact on health expenditure”.

BMI is not the only factor to consider when assessing the risk of overweight and obesity. Waist circumference also plays a part, as shown in Table 3, taken from NICE guidance on overweight and obesity.⁴² Considering waist circumference helps to get over the problem of using BMI alone in some people. A number of athletes, for example, have very lean bodies but high BMIs because of high muscle mass, which

vii The incidence rate ratio is the incidence rate of something occurring in someone exposed to a risk factor divided by the incidence of that same thing occurring in someone who is not so exposed. It provides a relative measure (‘relative risk’) of the exposure against not being exposed. In the context of overweight and obesity, this measure shows the increased risk of certain diseases in people who are overweight and who are obese in comparison with people who have a healthy weight

may or may not be a risk to their future health. But for people who are not athletically lean BMI is a good proxy of risk when combined with waist circumference.

Table 3: The degree of health risk associated with overweight and obesity with different waist circumferences

BMI	Waist circumference		
	'Low'	'High'	'Very High'
Overweight	No increased risk	Increased risk	High risk
Obesity class 1	Increased risk	High risk	Very high risk

Waist circumference definitions

Men: 'Low' = <94cm (37in); 'High' = 94-102cm (37-40in); 'Very high' = >102cm (40in)

Women: 'Low' = <80cm (31.5in); 'High' = 80-88cm (31.5-34.5in); 'Very high' = >88cm (34.5in)

3.1.1 What is diabetes and why is it significant to people's well-being?

The most common form of diabetes (diabetes mellitus; 'sugar diabetes'),^{viii} which is a long-term condition, occurs when the body becomes unable to use insulin effectively. Insulin is the hormone responsible for regulating blood sugar levels by controlling the flow of sugar into the cells of the body. About 10% of people with diabetes mellitus have Type 1 disease. The cause is unknown and it occurs when the pancreas – the gland that produces insulin in the body – fails to do this adequately. Put simply, it is treated with regular insulin injections.

The majority of people with diabetes mellitus have Type 2 disease. This condition was once called 'maturity onset' diabetes because it was normally only seen in older people. It is now seen in an increasing proportion of young adults and even children, largely as a consequence of excess body weight and inadequate levels of physical activity.⁴³ Put simply, it is treated with weight management and, usually, drugs that lower blood sugar levels.

Diabetes mellitus causes severe damage to the lining of blood vessels and this is the main issue with the disease. Every cell in the body is dependent upon having an adequate blood supply to bring it oxygen and nutrients and to take away waste products. The blood also circulates a variety of substances, for example hormones, which control a variety of body functions. If the blood supply to a part of the body is compromised, for example through damage to the lining of the blood vessels (causing them to be narrowed or blocked) then cell damage and, ultimately, cell

viii Most people are familiar with the word diabetes, but not all may be familiar with the two types of diabetes and why they are so named. Diabetes mellitus (that is, 'sweet') is the more familiar condition where the body becomes unable to control glucose levels in the blood. The less well-known diabetes insipidus (that is, 'bland') is usually caused by the pituitary gland failing to produce sufficient quantities of antidiuretic hormone (ADH). ADH helps to control the output of the kidneys. With inadequate levels of ADH circulating, the kidneys produce copious quantities of very dilute urine. Untreated patients with both conditions produce large quantities of urine; the word diabetes coming from the Greek word for siphon, because sufferers passed urine 'like a syphon'. In the days before chemical tests were available to assess the contents of a patient's urine, the only option was to taste it: people with 'sugar' diabetes had urine that tasted sweet, those with diabetes caused by insufficient ADH had urine that tasted insipid. Diagnostically, this early testing method was probably quite accurate, but perhaps not for those of a more fastidious nature

death, is inevitable. The consequences of diabetes, because of the damage to the lining of the body's blood vessels, include:⁴³

- heart disease and stroke – 50% of people with diabetes die of cardiovascular disease;
- neuropathy (that is, damage to sensory nerves) of the feet, which, combined with reduced blood supply, leads to ulceration on the feet and dry gangrene, which often necessitates amputation;
- neuropathy affecting other parts of the body, affecting some 50% of people with diabetes, leading to numbness, tingling, pain and weakness especially affecting the feet and hands;
- retinopathy (that is, damage to the light-sensitive lining of the eye) – after having diabetes for 15 years, some 2% of people will become blind and 10% will have severe visual impairment because of it: diabetes is the most common cause of blindness in people of working age; and
- kidney failure – diabetes is the main cause of this and 10-20% of people with diabetes will die of kidney failure.

The overall risk of dying prematurely in people with diabetes is at least double that of the risk in people without this disease. Diabetes is therefore a significant disease in terms of well-being and we should help people to avoid developing it.

The health and social care consequences of supporting people with diabetes and its complications are very substantial, and rising, because the incidence of diabetes is increasing and because the cost of most treatments rise each year.

Last year, the National Institute for Health and Clinical Excellence (NICE) published a review of the cost impact of diabetes.⁴⁴ Noting that 'it is not possible to quantify the full costs of diabetes', and taking account of the healthcare costs excluding community care (that is, predominantly hospital treatment) and GP prescribing, NICE estimates that the health care costs of diabetes in England rose from £1.61bn in 2006/7 to £2.08bn in 2009/10. This does not take account of the GP prescribing costs for the potential or actual complications of diabetes^{ix} nor for the social care costs of people suffering from the consequences of diabetes.

NICE estimates that the average health care cost of treating diabetes is £27.50 per head of population. With 349,800 people living in Barnet⁴⁵ this suggests that we are spending about £9.6m on managing diabetes in the NHS alone. But this is an underestimate: NICE's calculation excludes the cost of treating patients with the complications of diabetes who are managed in non-diabetic services (such as GP prescribing of drugs to lower blood pressure and cholesterol), and it is based on the English average prevalence, yet Barnet's prevalence of diabetes is above-average.

3.2 How can obesity be managed? Can its complications, particularly diabetes, be reduced?

3.2.1 Prevention

Other than babies who are born to women who develop diabetes in pregnancy (such babies are often significantly large), none of us is born overweight or obese. We become overweight, with many subsequently become obese, in childhood or in

ix For example, drugs to lower blood pressure and to lower cholesterol levels

adulthood. Obviously, the most important thing to do is to enable and encourage people to not become overweight in the first place.

NICE has issued guidance on the prevention of overweight and obesity.⁴² Based on this, our priorities should be:

- making the prevention and the management of overweight and obesity a priority at both strategic and operational levels in both health and social care services;
- as employers, we should also promote the prevention and the management of overweight and obesity amongst staff through –
 - on-site catering facilities promoting the consumption of healthy foods and drinks (for example by signs, posters, pricing and positioning of products),
 - policies, information and facilities that promote physical activity (for example with travel plans, by encouraging and enabling active transport, by signposting and using décor that encourages stair use and for reception and other staff to direct visitors to the stairs as a default);
- providing training and support for front-line personnel in health and social care to better enable them to promote healthy diets and exercise to their clients/patients and to help them manage overweight and obesity in their clients/patients;
- ensure that similar approaches are taken by health and social care provider organisations through our contracts;
- to promote interventions through policies on leisure services and facilities and open spaces, planning processes, other policies and the advice given by front-line personnel to their clients/patients that –
 - increase physical activity in ways that fit easily into people’s everyday life, and that are tailored to their preferences and circumstances, such as –
 - walking,
 - using stairs,
 - cycling;
 - improve diet and reduce energy intake through –
 - dietary modification
 - targeted advice
 - family involvement
 - goals to encourage beneficial change;
- to work with shops, supermarkets, restaurants, fast food outlets, cafés and relevant voluntary organisations to promote healthy eating choices.

Our approach to enabling people to avoid becoming overweight in the first place, and to reduce established overweight and obesity, needs to be long-term and multi-faceted. It should include promotional and awareness-raising activities as well as developing a less obesogenic environment and providing individual advice to clients/patients at every suitable opportunity.

It is also important to remember that overweight and obesity tend to be family problems rather than individual ones, and, especially in terms of avoiding and reducing overweight and obesity in our children, it is vital to engage whole families. Taking this approach is particularly important for front-line personnel working in children’s centres, nurseries, pre-school groups, schools and voluntary organisations working with children.

3.2.1.1 Management of overweight and obesity – non-surgical approaches

Again, based on NICE guidance,⁴² managing overweight and obesity needs to:

- have realistic goals, with people usually aiming to lose 5-10% of their weight;
- aim for a maximum weight loss of 0.5-1kg each week;
- focus on long-term lifestyle changes rather than on short-term quick-fixes; and
- be multi-component, that is address both diet and physical activity, offering a variety of approaches –
 - encouraging a balanced, health-eating approach,
 - involving regular physical activity, particularly those that can be part of everyday life, such as brisk walking, using stairs rather than standing on escalators or using lifts
 - including behaviour-change techniques, such as keeping a diary, and providing advice on how to cope with lapses and with ‘high risk’ situations
 - recommending or providing on-going support and encouragement.

Part of the success that we have had in Barnet with smoking cessation is ensuring that front-line personnel know how to raise the subject of a need for lifestyle modification and for them to be able to signpost patients/clients to appropriate services. It will therefore be necessary to ensure that suitable services are available, and these may include commercial, community and/or self-help weight management programmes. Obviously, people who have co-morbidities, for example, diabetes, hyperlipidaemia, hypertension, will need careful monitoring of such conditions to ensure that weight loss and medical management go hand-in-hand.

3.2.1.2 Management of obesity – surgical approaches

As referred to in section 3, for many people who are obese, behaviour modification alone is often of little benefit, probably because the internal satiety control becomes permanently re-set and the body’s normal food intake function is thus deregulated.³⁷ In such people, there is substantial evidence of the clinical and cost effectiveness of bariatric surgery, particularly in terms of reducing or, to all intents and purposes, eliminating, a number of the more significant problems associated with obesity, most notably diabetes. This has considerable beneficial implications for health and social care costs.

For example, a systematic review of 26 studies (including three randomised controlled trials and three prospective cohort studies) on surgery for obesity by the Cochrane Collaboration, updating previous Cochrane reviews,⁴⁶ found:

- Good evidence that bariatric surgery results in greater, and sustained, weight loss than conventional treatments in both moderate (body mass index [BMI] >30) and severe obesity, with reductions in comorbidities including diabetes and high blood pressure and improvements in quality of life, and, in one publication, a reduction in long-term mortality – in the main, these differences were statistically significant.
- Follow-up in the reviewed studies varied from 12 months to 10 years, with the differences in weight loss, BMI change and measures of quality of life between bariatric surgery and conventional treatment being maintained for at least ten years.
- Remission of diabetes was found in 70-75% of surgical patients at two years vs 8-13% in patients undergoing conventional treatment, and in ten year-follow-up studies this statistically significant difference in the recovery of diabetes was maintained.

- There were similar benefits for reductions in high blood pressure and raised blood cholesterol levels with surgery, and reductions in the incidence of other complications of obesity such as certain types of cancer, gall bladder disease and gout.
- One study showed a statistically significant reduction in overall mortality from both cardiovascular and non-cardiovascular events at 16 years between surgical and conventional treatment of obesity.
- The incidence of complications and adverse events was relatively low in both the surgery and the conventional treatment groups.

A number of other papers published in peer review journals have identified significant benefits of bariatric surgery over conventional treatment. For example:

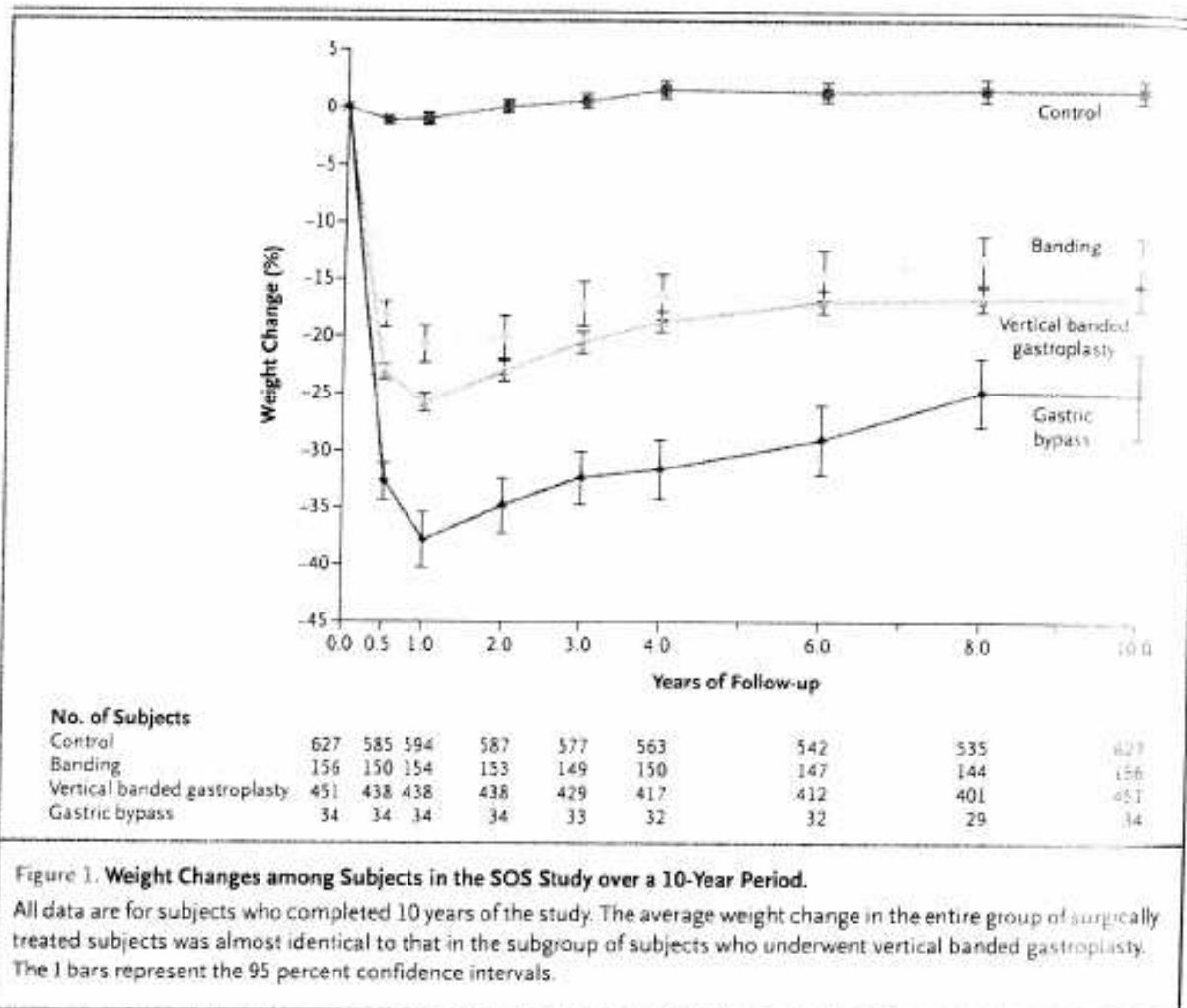
- In an eight-year follow-up study of 141 patients undergoing bariatric surgery in Switzerland by Kruseman and colleagues, average weight loss eight years after bariatric surgery was -30.7 (+/- 13.8)kg with an excess weight^x loss of greater than 50% in 59% of patients.⁴⁷
- In contrast, in a randomised controlled trial (RCT) by Toumilehto and colleagues, 522 middle-aged people with a mean BMI of 31 and impaired glucose tolerance were allocated to an intervention group receiving individualised counselling aimed at weight reduction or a control group.⁴⁸ The mean weight loss at one year was -4.2 +/- 5.1kg in the intervention (counselling) group and -0.8 +/-3.7kg in the conventional treatment group. This was a statistically significant difference. The proportion of subjects without diabetes during the trial was statistically significantly different, with fewer in the intervention group, in years 2, 3 and 4 of follow up but not at years 5 and 6.
- Picot and colleagues undertook a health technology assessment of bariatric surgery in which they looked both clinical and cost effectiveness.⁴⁹ They found statistically significant evidence that bariatric surgery is a more effective intervention for weight loss than conventional, non-surgical, treatments. In two RCTs reporting outcomes at two years, the mean proportional initial weight loss in the surgical groups was 20% and 21.6% whilst it was just 1.4% and 5.5% in the non-surgical groups. Most significant was their finding in relation to diabetes: weight loss reduces the risk of developing diabetes, and bariatric surgery has been found to resolve pre-operative diabetes in more than 75% of cases.
- A systematic review and meta-analysis also found a significant reduction in the incidence of type 2 diabetes following bariatric surgery, with 82% of patients having resolution of their clinical and laboratory manifestations of diabetes in the first two years following surgery and 62% remaining free of diabetes more than two years after surgery.⁵⁰
- Bariatric surgery has been shown to improve outcomes in other obesity-related morbidities. For example, a longitudinal study from 1948 to 1985 of the impact of weight loss on the risk of symptomatic knee osteoarthritis in women found that a decrease in BMI of 2 units or more in the ten years preceding assessment reduced the risk of developing osteoarthritis by over 50%.⁵¹

x Excess weight (in kilograms) is defined as $((\text{initial weight} - \text{current weight}) \div (\text{initial weight} - (25 \times \text{height}))) \times 100$ and is normally expressed as a percentage. Note that 25 is the upper limit of a normal body mass index. Also note that a very heavy person may lose many kilograms of weight but their percentage excess weight loss will be lower than that of a less heavy person who has lost the same amount of weight

- In a publication of particular significance, the Swedish Obese Subjects (SOS) study by Sjostrom and colleagues, a prospective, controlled study of patients undergoing bariatric surgery matched with patients receiving conventional treatment, showed some long-term benefits of bariatric surgery.⁵² After two years, whilst weight had increased in the control group it had decreased in the surgery group by 23.4%. At ten years, weight in the control group had increased 1.6% but in the bariatric surgery group it had decreased by 16.1%.

As shown in Figure 12, copied from Sjostrom's paper, not only was there a substantial difference in weight loss between controls and those undergoing surgery, but statistically significant differences between the two types of bariatric surgery used, with bypass surgery producing better results than banding. Increasingly, patients in this country are having bypass surgery, which is more suitable for binge eaters, as well as being more effective in enabling sustained weight loss.

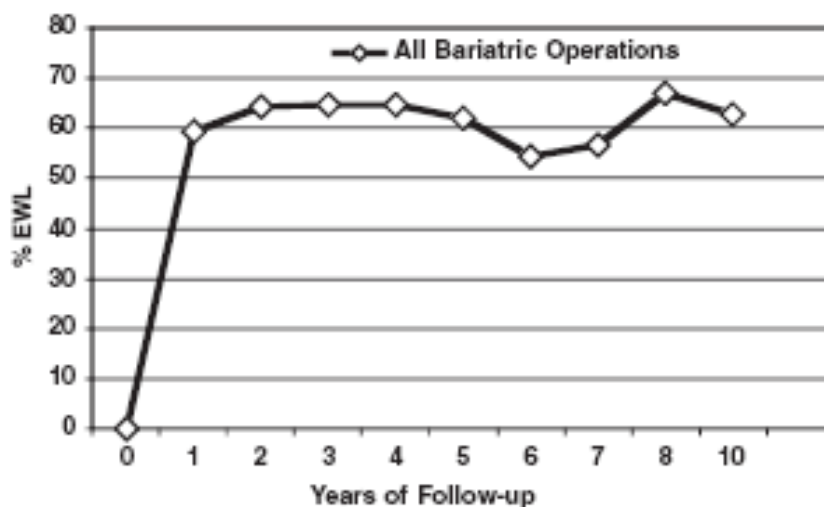
Figure 12: Weight changes in subjects in the SOS trial over ten years



The SOS Study findings were supported by a literature review and data pooling exercise from 43 reports providing follow-up for up to ten years undertaken by O'Brien and colleagues.⁵³ As shown in

Figure 13, excess weight loss was substantial and this was maintained over ten years. The authors commented that 'No other therapy for obesity in use today could approach this degree of weight loss over such a period of time'.

Figure 13: Pooled data showing the proportion of excess weight loss (%) and duration of follow-up for all bariatric procedures in O'Brien and colleagues' review



- In a five-year observational 2-cohort study, Christou and colleagues showed that bariatric surgery statistically significantly reduced both the development of new health-related conditions in morbidly obese patients and death.⁵⁴

They also showed that patients undergoing bariatric surgery made fewer physician visits than controls in the 5-year follow-up period. They estimated that the total health care costs of controls were 45% higher than that of bariatric surgery patients.

The recently-published report of the National Bariatric Surgery Register³⁷ also provides important information that is consistent with findings reported by studies published in peer review literature. Of the 6,483 people whose details are recorded on this register, 27.5% had type-2 diabetes, 16.5% were receiving treatment for obstructive sleep apnoea,^{xi} and 69% had some functional impairment, for example they could not climb three flights of stairs without resting. It is important to recognise that the people on the registry are a select group – they have all had bariatric surgery – and they are therefore not necessarily representative of all people in the country with obesity. However, I consider the following points raised in the registry report to be especially noteworthy:

- Analysis of this registry showed that, of the 1,783 people^{xii} who had bariatric surgery and who had diabetes at the time of surgery, at two-year follow-up, 85.5% 'had returned to a state of no indication of diabetes', meaning that they no longer needed medication.

This will not only save the cost of diabetes medication (quoted by the report as being an average of £3,000/year), but these people will not require the relatively

xi Obstructive sleep apnoea is a condition that interrupts breathing during sleep causing a drop in blood oxygen levels. The sufferer wakes sufficiently to restore normal breathing but on subsequently falling into a deeper sleep their breathing becomes obstructed again. This cycle of recurrent low levels of blood oxygen (each lasting from a few seconds to several minutes) can occur every few minutes during the night. Untreated, this condition caused daytime fatigue and difficulties in cognition, but, more importantly, increases the risk of heart failure and death. A common cause of obstructive sleep apnoea is overweight and obesity. The most common treatment is the use of continuous positive airways pressure using a mask and respirator

xii That is 27.5% of 6,483 people

intensive follow-up that people with diabetes have, nor be at risk of developing the complications of diabetes, including peripheral vascular disease, neuropathy, blindness, heart attack and death.

- The registry report noted that, one year after surgery, on average, patients had lost 57.8% of their excess weight, and that almost half with a functional impairment before surgery had returned to a state of no such impairment (that is they could climb three flights of stairs without needing to rest), and 60% with obstructive sleep apnoea were able to stop treatment for this condition.

It is also important to note that even modest weight losses are associated with significant improvements in blood cholesterol, and this can be achieved with non-surgical treatments.⁵⁵ However, a review of much of the literature on the use of lipid-lowering drugs (such as the group called statins) shows that there is not necessarily a relationship between lowered lipid levels and clinical outcomes such as fewer cardiovascular events, and that there may be a direct impact of some statin drugs on such outcomes and not just the lowered blood lipid levels.⁵⁶ It is also noteworthy that both weight loss (using non-surgical interventions) and, separately, dietary sodium restriction, have been associated with reductions in the incidence of high blood pressure at seven years' follow-up.⁵⁷ However, I have not found any trials published in peer review journals that show a reduction in the incidence of diabetes following non-surgical treatments of obesity.

3.3 Is managing overweight and obesity cost effective?

The cost-effectiveness of managing overweight and obesity has been reviewed by NICE.⁵⁸ The first point to note is that whilst the management of obesity itself is potentially beneficial, obesity management also plays a part in the management of a number of other conditions, including (but not limited to) heart attack,⁵⁹ coronary heart disease, stroke and atrial fibrillation;^{xiii, 60} stress incontinence, diabetes, raised cholesterol levels, high blood pressure, back pain, arthritis;⁶¹ infertility, and sleep apnoea.^{xiv} The management of these conditions, which, with others, are all associated with obesity, is probably part of the reason why, according to NICE, people who have a BMI of >30 have statistically significantly more contacts with their GP, practice nurses and hospital outpatient clinics and receive more NHS prescriptions than those who have a healthy weight.

In its assessment of the cost-effectiveness of managing overweight and obesity, NICE does not directly comment on its associated social care costs, but notes that the National Audit Office has estimated the financial burden to society of obesity is

xiii Atrial fibrillation, the commonest heart rhythm disorder, affects about 1% of the population. atrial fibrillation its treatment costs are substantial taking up about 1% of the NHS budget in 2004. Left untreated, atrial fibrillation is a significant risk factor for stroke and other conditions, including symptoms such as breathlessness, difficulty in breathing, palpitations, dizziness and fainting, and conditions such as heart failure

xiv Obstructive sleep apnoea is a condition that interrupts breathing during sleep causing a drop in blood oxygen levels. The sufferer wakes sufficiently to restore normal breathing but on subsequently falling into a deeper sleep their breathing becomes obstructed again. This cycle of recurrent low levels of blood oxygen (each lasting from a few seconds to several minutes) can occur every few minutes during the night. Untreated, this condition caused daytime fatigue and difficulties in cognition, but, more importantly, increases the risk of heart failure and death. A common cause of obstructive sleep apnoea is overweight and obesity. The most common treatment is the use of continuous positive airways pressure using a mask and respirator

some £2bn, which is much more than the estimated NHS cost of some £480m because it includes lost productivity as well as direct service costs.

Based on the NICE report, it is difficult to draw robust conclusions about the cost-effectiveness of interventions such as diet, physical activity and behavioural treatment because of the paucity of published research, the poor generalisability of what has been published and the high sensitivity of cost-effectiveness calculations to the duration of benefit. That said, an Australian study has indicated that, at October 2005 exchange rates, the incremental cost^{xv} per kilogram of weight lost following of six counselling sessions over 12 months was £4.13 for a doctor and dietician intervention and £3.09 for dietician-alone sessions in comparison with a control group receiving no intervention.⁶² It is not clear whether these findings would be applicable in the UK. And a study in the USA of the effectiveness of group and mixed family-based treatment for childhood obesity found a statistically significantly greater weight loss per dollar spent and concluded that this was not cost-effective, but that it might be so for a more obese population.⁶³ It is not clear whether these findings would be applicable in the UK either. However, a review of the control arm of a study of drug treatment of obesity, which underwent monthly monitoring by a GP for the first year and by a nurse for the second, found a cost per QALY of between £16,000 and £17,400,⁶⁴ which is well within the normal range used by NICE as a threshold for cost-effectiveness for NHS-funded interventions. The NICE paper reporting this noted that, for various reasons, this was likely to be an under-estimate of the cost-effectiveness of the intervention.

NICE found a number of publications reporting relative weight losses at 12 months and costs per kilogram lost attributable to dietary changes. These ranged from 0.4kg–13.4kg lost at 12 months with costs/kilogram lost ranging from £17–£1215.^{65,66,67,68,69,70,71} Because of the heterogeneity of the interventions used in these various trials, NICE considered that they were 'suggestive of cost-effectiveness but found that exercise alone was not cost-effective and that there was only 'weak evidence' of the cost-effectiveness of behaviour therapy compared to diet.

Importantly, NICE noted that the longer a weight loss is maintained then the more cost-effective is the intervention that enabled it, and its recommendation is for a multi-faceted approach to non-drug/non-surgical management of overweight and obesity; this makes the differences between different approaches less important. Put another way, the differences between the various published trials makes it difficult to be definitive about one approach to weight management or another, but a simultaneous combination of different approaches is likely to be more beneficial because of a synergistic effect and the longer any weight loss is maintained then the more cost-effective the interventions will be.

NICE considered the evidence for the use of a drug called sibutramine in the management of obesity. However, this drug has since been withdrawn on safety grounds.

NICE reviewed the evidence for the clinical and cost-effectiveness of a drug called Orlistat in the management of obesity and found it to be cost-effective in comparison with non-pharmacological interventions, with an incremental cost effectiveness ratio of £22,099 to £39,308 per QALY, dependent on gender, initial BMI, the natural rate of

xv The incremental cost is the change in cost associated with an intervention compared with doing nothing. It is usually expressed as the ratio of the costs of two different interventions with each expressed in terms of anticipated benefit, for example, quality-adjusted life years

weight gain and the rate of weight regain after conclusion of treatment when used over 48 months.⁷²

NICE also reviewed the evidence for the clinical and cost-effectiveness of bariatric surgery in comparison with non-pharmacological interventions and found this to be cost-effective with an incremental cost-effectiveness ratio per QALY of between £6,300 and £8,500,⁷³ which is substantially cheaper than pharmacological therapy, probably because of the duration of benefit. The cost-effectiveness of bariatric surgery is discussed in greater detail in the next sections, 3.3.1 and 3.3.1.1.

3.3.1 *The cost-effectiveness of bariatric surgery and the impact of the NHS investing and not investing in this*

Picot and colleagues' health technology assessment of bariatric surgery also looked at its cost effectiveness.⁴⁹ Five original economic evaluations were assessed but were considered not to provide reliable and generalisable estimates of the incremental cost-effectiveness of bariatric surgery of various types in comparison with non-surgical treatment. The authors thus developed their own economic model which was extended to include the impact of cardiovascular disease as well as diabetes. Three different patient groups were considered: those with a BMI >40; those with a BMI of 30-40 who also had diabetes; and those with a BMI <35. Modelling was based on data obtained from various trials of such patients and looked at 'optimistic' and 'pessimistic' outcomes derived from different trials. The results are shown in Table 4, from which it can be seen that bariatric surgery is cost effective in people with a BMI of 30-35 with no complications if the benefits last 20 years or more (for which there is currently no evidence); it is cost effective in people with a BMI of 40 or greater, and cost effective in people with a BMI of 30-35 if they also have type-2 diabetes.

Table 4: Results of cost effectiveness modelling by Picot and colleagues

Condition being treated	Incremental cost effectiveness ratio (£/QALY gained)	Comment
Moderate obesity (BMI 30-35)	60,754 at 2 years 12,763 at 20 years	The second figure assumes benefit lasts for 20 years. There is good evidence that bariatric surgery maintains weight loss at ten years in a majority of patients
Morbid obesity (BMI >40)	1,897 – 4,127	Optimistic/pessimistic calculations assuming 10 years' benefit
BMI 30-35 plus type-2 diabetes	18,930 at 2 years 1,367 at 20 years	The second figure assumes benefit lasts for 20 years. There is good evidence that bariatric surgery maintains weight loss at ten years in a majority of patients

3.3.1.1 Modelling the impact of funding/not funding bariatric surgery

We have modelled the effect of funding and of not funding bariatric surgery across the five boroughs of NHS North Central London (NCL), that is, Barnet, Enfield, Haringey, Camden and Islington.^{xvi} Using this larger population base provides more accuracy to the modelling and I consider it reasonable to assume that the findings are generally applicable to people living in Barnet.

The average BMI of NHS NCL patients undergoing bariatric surgery at the Whittington Hospital is 48 and the median is 48.65. This approximates to the figures in the National Bariatric Surgery Register and we can reasonably assume that this proportion applies to patients receiving bariatric surgery in other hospitals.

We do not know the BMIs of patients with diabetes undergoing bariatric surgery and thus have had to make assumptions. We have modelled^{xvii} the costs and benefits of bariatric surgery for people with diabetes assuming that those undergoing surgery represent 1%, 5% and 10% of those with diabetes and obesity at BMIs of 30 or greater, 40 or greater and 50 or greater. The number of bariatric procedures undertaken on NHS NCL patients in 2010/11 is equivalent to approximately 0.5% of our estimate of people with diabetes with a BMI of 30 or greater, 3.5% of those with diabetes and a BMI of 40 or greater and 100% of those with diabetes and a BMI of 50 or greater.

Whatever the proportion of people with diabetes undergoing surgery at different BMIs, the outcome of this modelling shows that there is an increasing financial saving over the years. This is shown in Figure 14, Figure 15 and Figure 16.

I consider it especially important to note that if we stopped funding bariatric surgery for people with diabetes, whilst there would be an initial saving (because we would not be paying for the operations) we would quickly incur additional costs because of the need to treat diabetes and its complications. The estimated financial effect of this is shown in Figure 17.

Put another way, this modelling shows that, unequivocally, bariatric surgery in people who have already developed type 2 diabetes saves health service costs (and by implication, social service costs) after about five years, and, continuing to provide this treatment to others after this time leads to more savings than costs. Not funding this treatment would increase health and social care costs as well as worsen people's wellbeing.

xvi This modelling was led by Ian Newman, Business Analyst Manager, NHS North Central London (Barnet)

xvii The population in NCL with obesity was modelled using Health Survey for England 2009 data [Health Survey for England 2009 trend tables (see <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england--2009-trend-tables> [accessed 9 February 2012]). Trends were identified from these data and combined with Greater London Authority population estimates (2008) to estimate the number of people with different body mass indices. The cost of bariatric surgery was taken from the average costs of these procedures for Barnet PCT patients in 2010/11. The proportion of people with diabetes for each level of BMI, the cost of treating people with diabetes and the evidence of benefit was taken from the National Bariatric Surgery Register. It was assumed that bariatric surgery procedures were undertaken at a similar rate for each group of patients throughout the year

Figure 14: Modelled costs/(benefits) of bariatric surgery performed on 1% of people in NCL with obesity and diabetes at different BMI levels

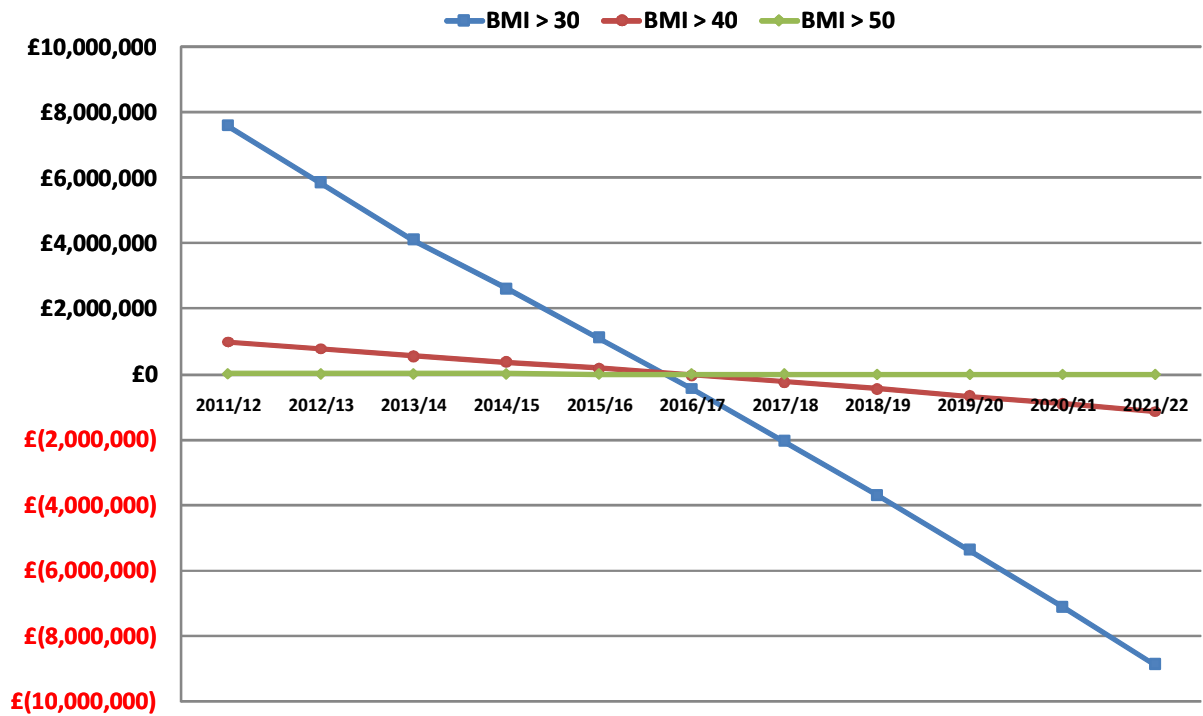


Figure 15: Modelled costs/(benefits) of bariatric surgery performed on 5% of people in NCL with obesity and diabetes at different BMI levels

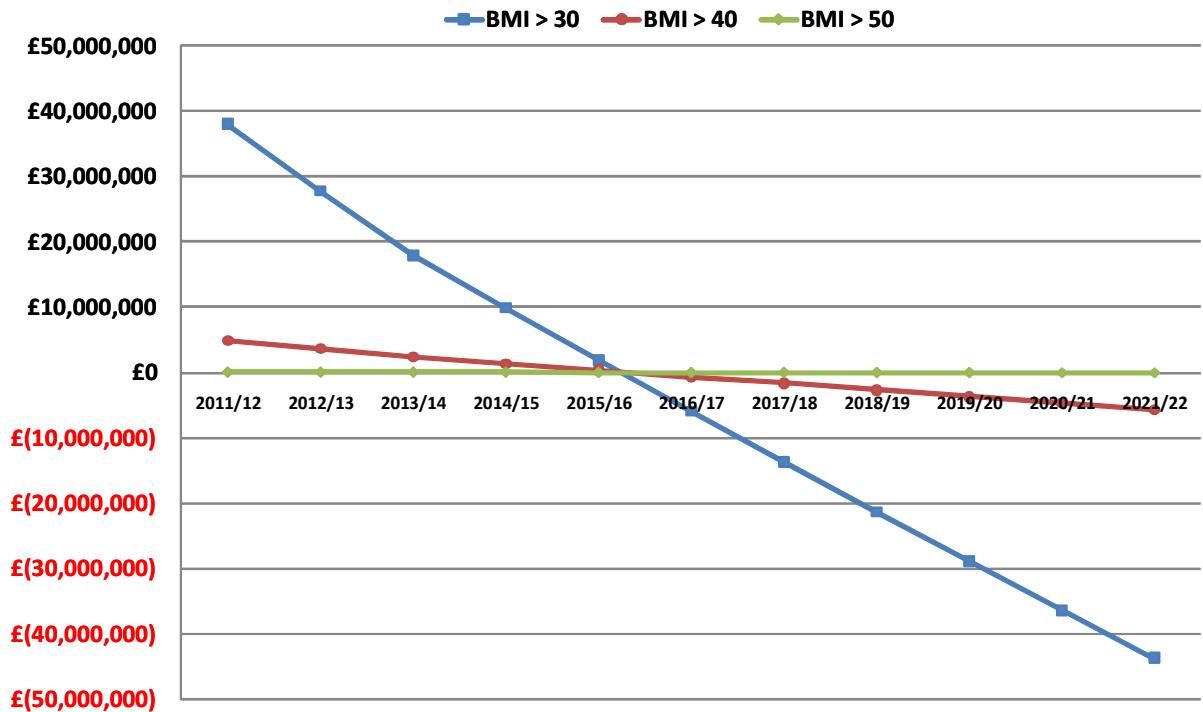


Figure 16: Modelled costs/(benefits) of bariatric surgery performed on 10% of people in NCL with obesity and diabetes at different BMI levels

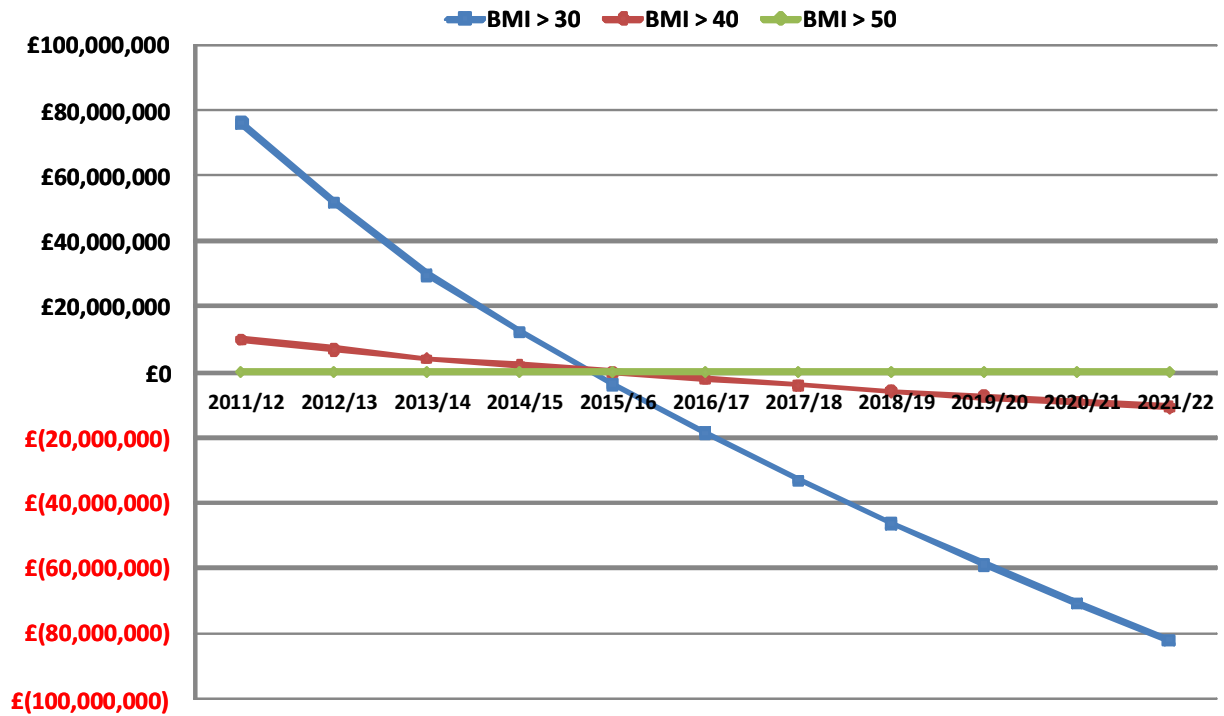
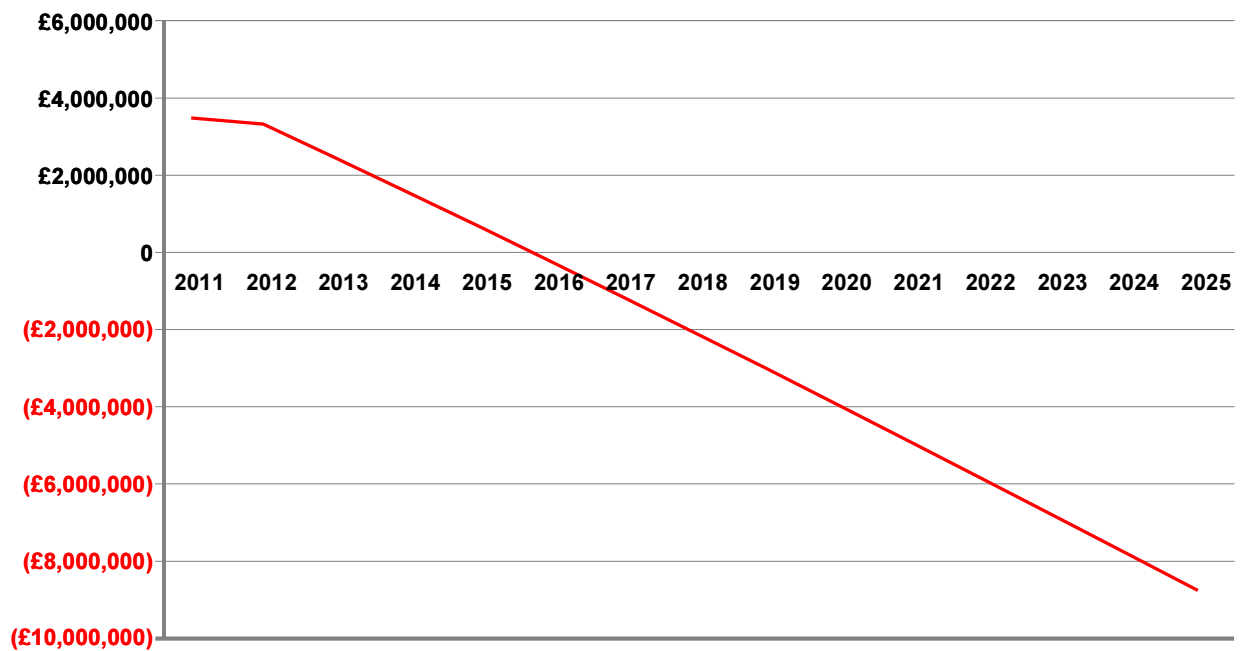


Figure 17: Modelled financial impact of stopping all NHS-funded bariatric surgery in the North Central London area



3.4 How is this relevant to Barnet?

Currently, the proportion of adults who are obese in Barnet is below the national average (17.9% vs 24.2%), albeit our levels of obesity in Year-6 children is closer to the national average (17.5% vs 18.7%).⁴ However, there is no room for complacency; the proportion of children and adults who are overweight and obese in Barnet will continue to rise if we fail to take effective action to deal with this. In turn, this will lead to greater levels of obesity-associated disease and requirements for long-term care. As Guh and colleagues noted, this will “carry a profound health burden and will have a significant impact on health expenditure”⁴¹ and, we can infer, it will do so on social care spending too.

Obesity is a significant cause of health inequality. Men and women in unskilled manual occupations are more likely to be obese than those in professional occupations; Asian children are four times more likely to be obese compared to children of white background; Black Caribbean women have obesity levels 50% higher than the national average and Pakistani women 25% higher than the national average.⁷⁴

Unless we enable people to avoid overweight, and unless we help people to manage established overweight and obesity, then we can expect health inequalities to widen in Barnet. There is evidence for this: a 28-year prospective cohort study of 8,353 women and 7,049 men in Scotland undertaken by Hart and colleagues found that the death rate in women in lower social classes who were never-smokers was a third higher than for those in higher social classes and that this was partly due to obesity.⁷⁵ As suggested by Mackenbach, commenting on Hart and colleagues’ paper, if smoking were to be eliminated, there would still be substantial health inequalities, in the main attributable to obesity.⁷⁶ It is most unlikely that we will eliminate smoking in Barnet (or anywhere else), but this study tells us that obesity in itself is a significant cause of health inequalities.

Whilst Barnet’s obesity figures currently do not vary significantly from the national average, I also consider it of concern that so many children starting school in Barnet are already overweight or obese, and that even more are overweight and obese by the time they reach year 6. The proportion of overweight and obese children in our schools is shown in Figure 18 and Figure 19. If there is one encouraging feature from these data, it is that there has not been a significant upward trend in the proportion of overweight and obese children in these classes in Barnet schools since 2006/07. But there is no downward trend either. If we are to address the overweight and obesity epidemic in Barnet then we need to take action to reduce the proportion of children in the borough starting school who are either overweight or obese and reduce – even more – the proportions who enter year-6 as overweight or obese.

I consider it particularly important to note that, as shown by Figure 18 and Figure 19, the proportion of children who are overweight and who are obese is higher in year 6 than in reception class. This means that more children are developing this problem in their early school years. We have a greater opportunity to influence this than we do the proportion of children who are overweight and obese entering our school system and it is important that we do so.

Figure 18: The prevalence of overweight and obesity in reception class children in Barnet schools

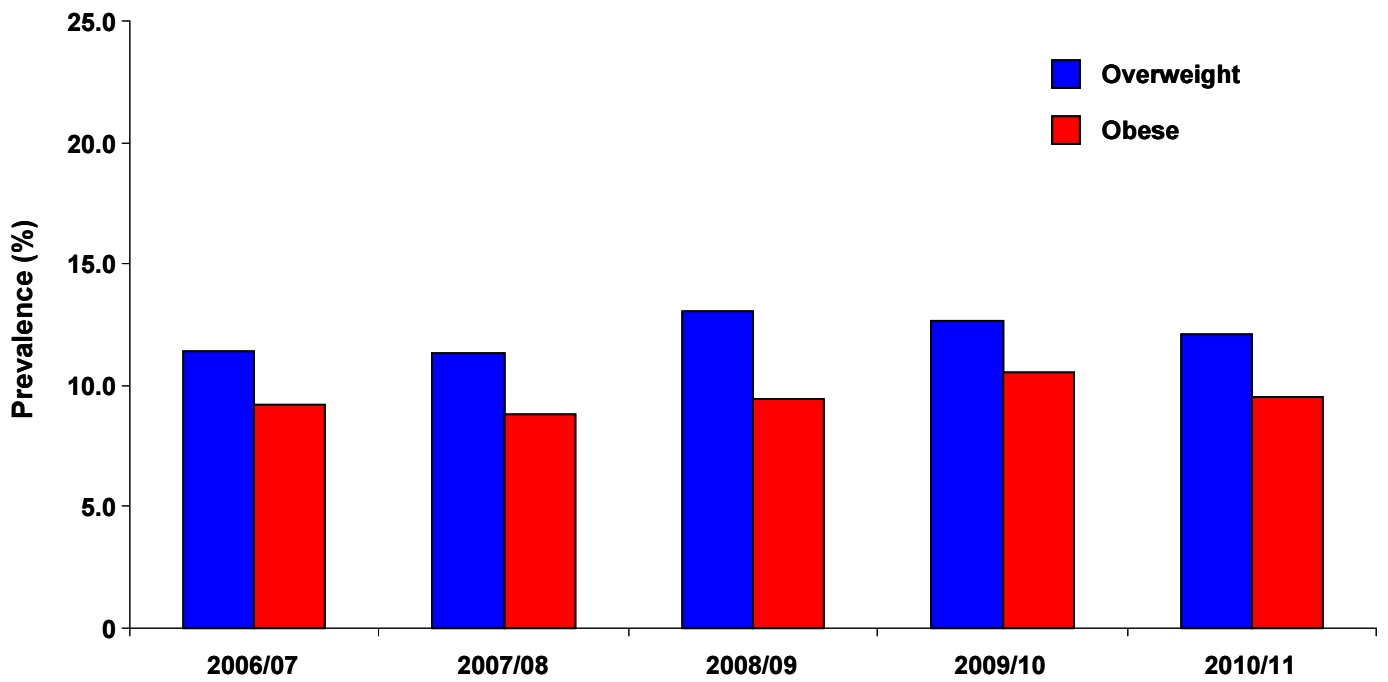


Figure 19: The prevalence of overweight and obesity in year-6 children in Barnet schools

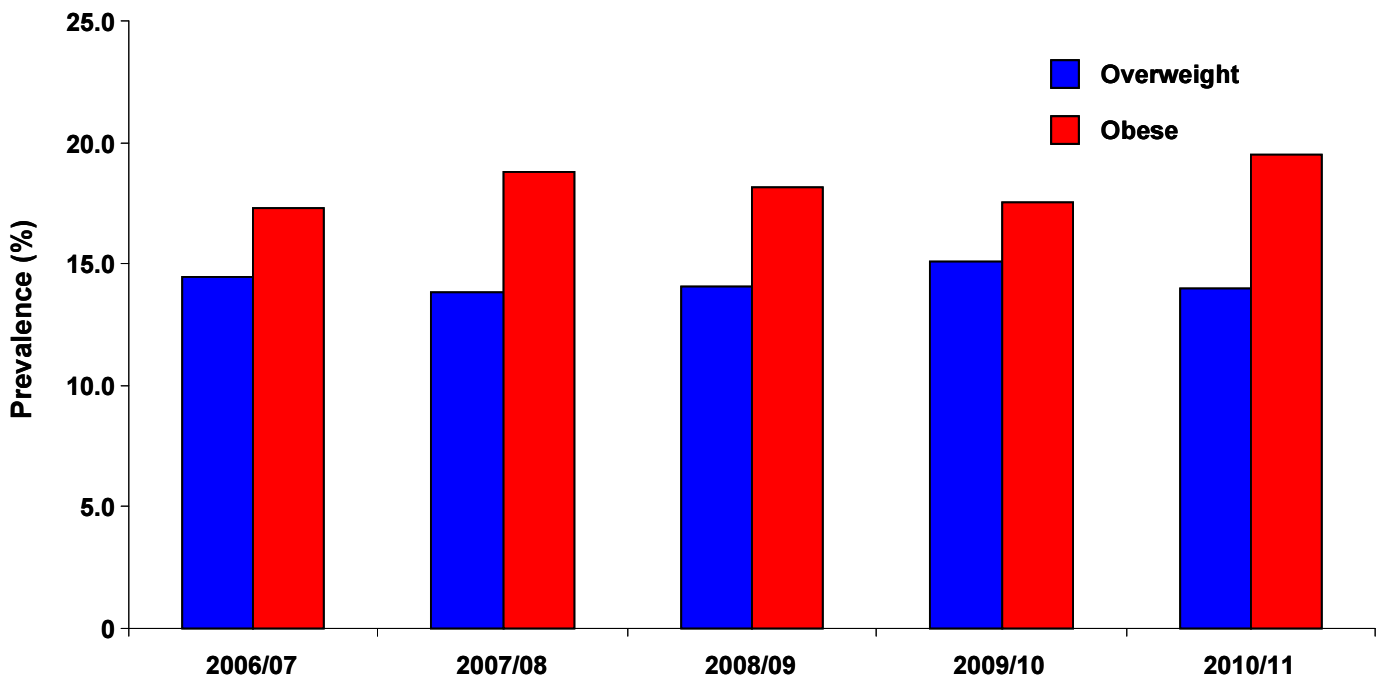
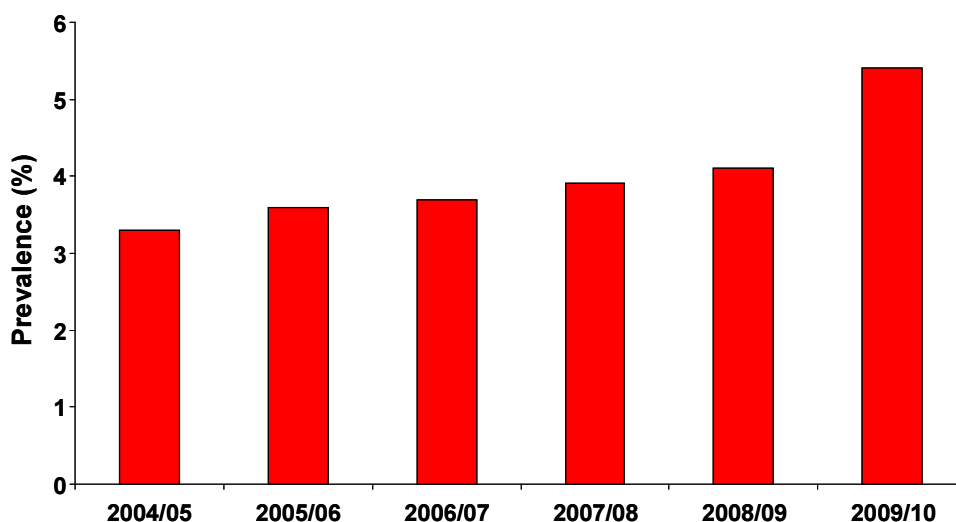


Figure 20 shows the increasing prevalence of diabetes recorded on GP registers in England in people aged over 17 years. The combined prevalence of diagnosed and undiagnosed diabetes in England is forecast to rise to 8.5% by 2020, but in Barnet, it is forecast to reach 8.5% seven years before this, by 2013, and to reach 9.6% by 2020.⁷⁷ The above-average prevalence of diabetes in Barnet, the most significant cause of which is obesity, is of concern: even with below-average obesity levels in the borough there is clearly much to be done to address a major health risk and future health and social care cost pressure.

Figure 20: The increasing prevalence of diabetes mellitus in England (2004/05 – 2009/10)



We currently have no strategic approach to the management of overweight and obesity in Barnet akin to our approach to smoking cessation. This needs to be rectified if we are to improve people's well-being and help to reduce future health and social care costs. We also need to take a more systematic approach to enabling people to avoid overweight in the first place.

3.5 What do we need to do in Barnet?

First and foremost, we need to recognise obesity as a problem of epidemic proportions that is increasing the incidence of various diseases and thus increasing health and social care costs, increasing health inequalities, and causing substantial reductions in people's well-being.

We need to encourage and enable people to:

- be more physically active in their everyday lives;
- eat sensibly to avoid becoming overweight;
- to lose weight if they are overweight or obese;
- to seek specialised help to lose weight if necessary.

We also need to ensure that there are services available to support people to lose weight (and these might be commercial organisations) as well as ensure that front line health and social care staff are enabled to raise the subject with patients/clients effectively and signpost them to clinically appropriate services.

4 Reducing the health inequality impact of child poverty

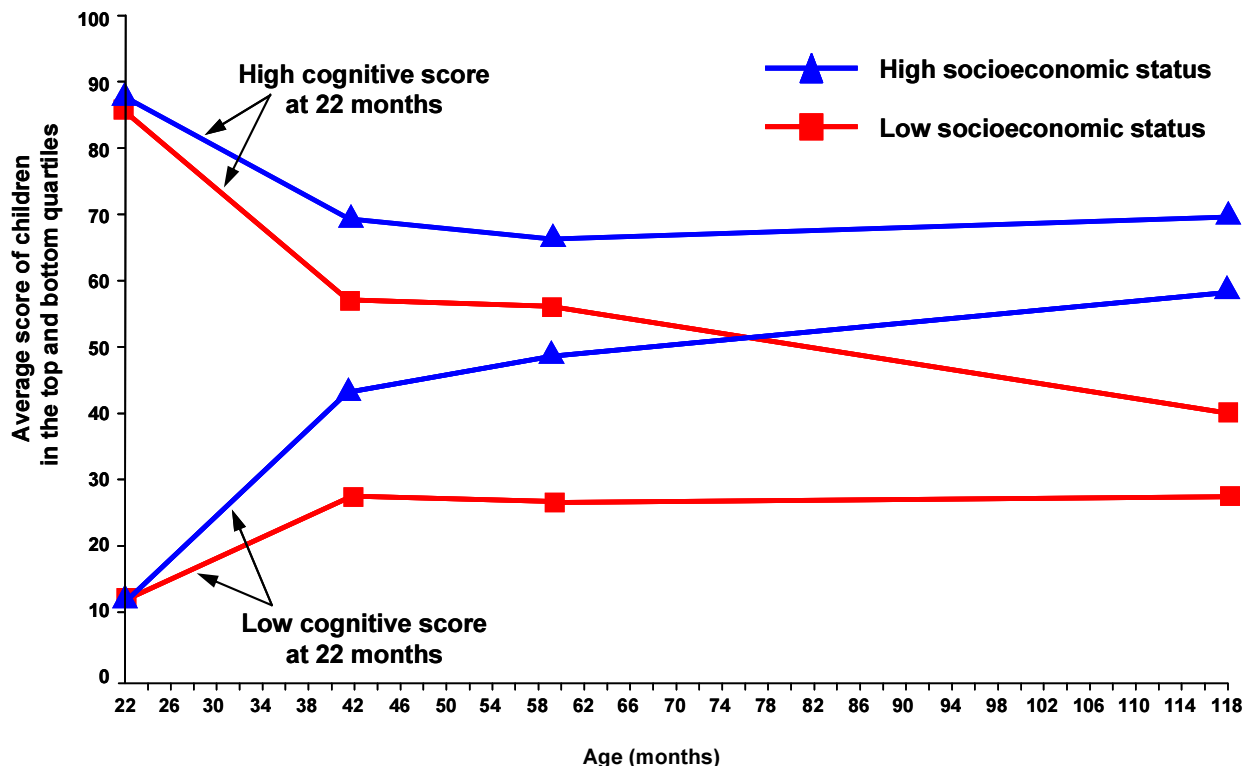
4.1 Background

We know from The Marmot review, *Fair Society Healthy Lives*, that people in higher socioeconomic groups generally experience better health; there is a 'social gradient' in health.⁷⁸ The Marmot review also tells us that the relationship between educational achievement and health shows a similar gradient: people with better educational achievement generally enjoy better health, a point confirmed by others.⁷⁹

The Marmot review also shows the impact of child poverty on cognitive ability in a diagram taken from work by Feinstein.⁸⁰ This is shown in Figure 21, and shows that children born into families with high socioeconomic status, whether their cognitive scores at ten months of age are, on average, high or low, generally have higher cognitive scores by the age of about ten years. In contrast, those born into lower socioeconomic group families, on average, have lower cognitive scores at the age of 10 years, irrespective of their scores at ten months. These differences are statistically significant.

Such educational inequalities persist at secondary age: children eligible for free school meals are half as likely to achieve 5 GCSEs A*-C (including English and maths) compared to those not eligible for free school meals (30.9% vs. 58.9%).⁸¹ For many, we can expect these educational achievement differences to translate into health inequalities in later life.

Figure 21: Inequality in early cognitive development in children in the 1970 British Cohort Study, at 22 months and 10 years



4.2 The importance of the home learning environment

Dearden and colleagues identified that improving health, and improving parenting skills and the home learning environment, could have short and long-term benefits for children,⁸² although this is not the whole explanation of the differences between the

cognitive skills gap between children from affluent backgrounds and those from deprived backgrounds nor will it completely eliminate such differences.⁸³ That said, the most significant factor in a child's achievement at school is the home learning environment, as shown in Table 5.⁸⁴

Table 5: Effect sizes for socio-economic status, mother's and father's education, and home learning environment on 5, 7 and 10 year outcomes

	5-year olds		7-year olds		10-year olds	
	Literacy	Numeracy	Reading	Maths	Reading	Maths
Socio-economic status	0.29	0.43	0.37	0.39	0.26	0.32
Mother's education	0.35	0.23	0.33	0.33	0.46	0.27
Father's education	NS	NS	0.19	0.16	0.25	0.23
Earned income	0.31	0.28	0.15	0.15	0.24	0.23
Home learning environment	0.73	0.65	0.60	0.60	0.49	0.45

NS = not statistically significant

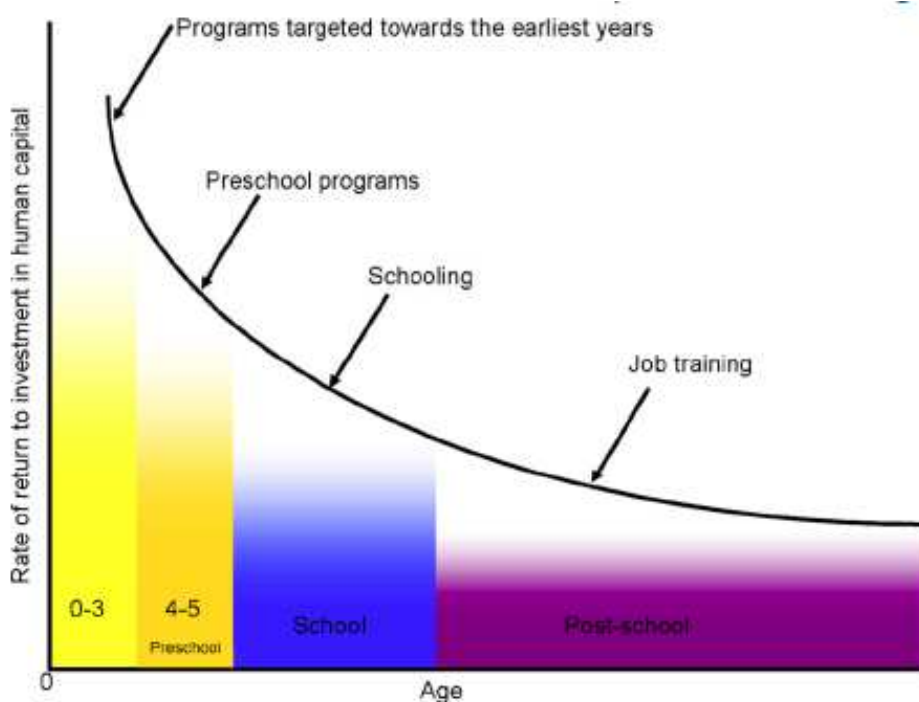
The importance of the home learning environment on future educational achievement has been confirmed by others. For example Gregg and colleagues, whose researches into outcomes for children in middle childhood (such as cognitive ability (IQ and school performance), socio-emotional outcomes (self esteem, locus of control and behavioural problems) and physical health (risk of obesity)) has shown that children in low-income households are 'disadvantaged across the full spectrum of outcomes compared with their better-off counterparts' and that *'the child care and school environments are negligible in importance compared with the role of the home environment provided by low income parents for outcomes at ages up to eight years'* [emphasis added].⁸⁵ Byford and colleagues, who reviewed cohort studies concerning parenting practices and outcomes found particularly that the 'intellectual home environment', parental aspiration and cognitive stimulation of children at home were all positively and independently associated with childhood cognitive ability (and that coercive discipline was negatively and independently associated with it [which one might interpret as 'spare the rod and support the child']).⁸⁶ This has been borne out by others: cognitively stimulating materials and activities at home are especially important in influencing a child's cognitive development;^{87,88} the children of mothers who are 'more warm and supportive' and who provide cognitive stimulation at home have better language abilities as assessed by their teachers;⁸⁹ and children's verbal and intelligence scores are higher when their parents are more supportive and less authoritarian.^{90,91}

Various studies, including controlled ones (that is, one group receiving an intervention and the other not), have shown that early childhood intervention programmes, such as providing parental support and training, learning activities and structured experiences for children and enhancing the home environment lead to statistically significant improvements in the intervention groups including improved developmental and intelligence quotient,⁹² cognitive development,⁹³ creative thinking⁹⁴ and concept development.⁹⁵

According to a report from the European Expert Network on Economics of Education, experimental evidence from a variety of sources shows that interventions that

supplement the early lives of children of disadvantaged families are beneficial and can improve cognitive and socio-emotional ability, and that such interventions promote schooling, reduce crime, foster work productivity, reduce teenage pregnancy, and have high benefit-cost ratios and rates of return.⁹⁶ The benefit against investment is greatest for interventions in the early years of life, as depicted in **Error! Reference source not found.** taken from this report.

Figure 22 Rate of return on investment in human capital^{96, xviii}



Diamond and colleagues evaluated the *Tools of the Mind* programme in the USA, which integrates supportive activities and training into almost all pre-school classroom activities.⁹⁷ It includes a 'buddy reading' activity in which all children are given a picture book and take turns to tell a story about this in pairs, turning the pages and pointing to the pictures as they do so. It also includes 'clean-up' activities which encourages self-discipline by requiring the children to clear up quickly at the end of an activity in preparation for the next. Other aspects of the programme include role play, and training for teachers. Diamond and colleagues found that children on the *Tools* programme showed 'impressive gains' in executive functions (also called cognitive control), which are considered to be critical for success in future school life.

In a review of the research on reading aloud to children, Duursma and colleagues identified 'ample research evidence' that this promotes the development of language and emergent literacy skills which, in turn, helps to prepare children for school.⁹⁸ They found evidence that parent-child literacy activities, such as shared book reading, stimulate children's oral language skills and vocabulary and that this is likely to enable language development more than toy play or other adult-child interactions. This is not to belittle these other activities, but it emphasises the great importance of reading to and reading with pre-school children, which, according to Duursma and colleagues, not only helps children to 'develop solid language and literacy skills' but

xviii For further evidence see: James J. Heckman, Schools, skills, and synapses, *Economic Inquiry*, Vol. 46, Iss. 3, pp. 289-324, 2008. See <http://ftp.iza.org/dp3515.pdf> (accessed 12 March 2012)

promotes children's 'understanding of the world, their social skills and their ability to learn coping strategies'.

In a review of the research literature concerning parental involvement, parental support and family education on school achievement for the then Department of Education and Skills, Desforges and Abouchaar identified that parental involvement shapes how children perceive school education and bolsters their motivation to succeed and, for younger children, this is supplemented by parents helping their children to develop skills, such as early literacy.⁹⁹ Desforges and Abouchaar also looked at family learning through literacy and numeracy schemes established by the then *Adult Literacy and Basic Skills Unit* (now the *Basic Skills Agency*).^{xix} They found that, for example, the *Family Literacy Scheme*, a 96-hour intensive teaching programme over 12 weeks, targeted at at-risk children (aged 3-6 years) and their parents, led to sustained, statistically significant improvements in the children's and the parent's reading and writing skills and to 'significant boosts' in parental achievement, confidence and competence in helping their children. Teachers rated the children on these courses to be superior to peers in classroom behaviour and equal to peers in other academic and motivational respects. Desforges and Abouchaar described these outcomes as 'striking for cohorts whose attainments on entering the programmes was significantly less than the average'. They also found evidence that similar results were obtained with numeracy schemes and, based on initial evaluations, with literacy schemes for ethnic minority families.

Feinstein and colleagues drew similar conclusions, that parenting skills in terms of warmth, discipline and educational behaviours are all major factors in contributing to a child's success or otherwise at school, and that parents reading to their pre-school children, especially, is associated with higher scores in language, pre-reading, early number concepts and non-verbal reasoning at school entry.¹⁰⁰

Significantly, a study undertaken by Hunt and colleagues for the Department for Education found that whilst the majority of parents maintained the same level of early home learning once their child started in a childcare place, in families where the adults are not in employment, parents undertake *less* early home learning once their child starts in a childcare place.¹⁰¹

4.3 How is this relevant to Barnet?

Barnet is rightly proud of its schools and their attainments, but if we are to reduce health inequalities, one area that we must concentrate on is enabling children in Barnet's poorest families to be able to take full advantage of what our schools have to offer.

Twenty-three point seven per cent of children in Barnet (more than 18,000) are living in poverty, against a national average of 20.9%.¹⁰² There are more children living in poverty in Barnet than in Camden (14,640),¹⁰³ which is more deprived than Barnet, and more than in Islington (16,710), which is substantially more deprived than Barnet.¹⁰⁴

There is a substantial body of research showing that children living in more deprived areas are less able to take full advantage of school education (and consequently achieve less) and that this impacts on their health. Put another way, not only will they experience poorer health but, proportionately, there will be higher health and social

xix See <http://www.skillsforlifeframework.com/?atk=2530> (accessed 12 March 2012)

care costs because of this. Whilst this may not be entirely avoidable, there is also a large amount of evidence that a number of different interventions, primarily aimed at improving parenting skills (principally parent literacy and numeracy, and thus child literacy and numeracy) and improving the home learning environment can lead to sustained and statistically significant improvements in educational attainment. We can reasonably expect this to reduce future health inequalities and to reduce the need in this group for health and social care services.

There are a lot of children in Barnet (more than 18,000) who are much less likely than their peers to be able to take advantage of the excellent school education available in the borough and who are more likely to experience health inequality as a consequence.

Finally, it is also important to recognise that smoking is a particular issue in families living in poverty:

- households with the lowest tenth of income spend six times as much of their income on tobacco as do households in the highest tenth;
- more than 70% of two-parent households on Income Support buy cigarettes, spending 15% of their disposable income on tobacco;
- excluding money spent on tobacco, Income Support alone is insufficient to support a minimum standard of living, especially in homes with children; and
- low-income households where parents smoke are much more likely to lack adequate basic amenities, such as food, shoes, coats, than non-smoking parents on Income Support.^{105,106,107}

Targeting families living in poverty in non-stigmatising ways to enable smokers to quit will improve their health directly and make more money available for both basic amenities and an improved home learning environment for children.

4.4 What do we need to do in Barnet?

Barnet Council is running an early intervention programme to provide support to families in greatest need. Through the Family Nurse Partnership, other families are being supported from a health perspective. And there are a number of children's centres in the borough. However, there are still many families living in poverty that are not able to access these services. In addition, and especially, we need to enable more parents and carers of children living in poverty to be able to read to their children; there is an adult literacy issue here. We also need to enable parents and carers of these children to develop greater parenting skills and to provide their children with a more effective home learning environment.

We therefore need to:

- work with the statutory, voluntary and commercial sector to enable greater literacy and numeracy skills in parents and carers in families living in poverty to improve the pre-school literacy and numeracy competence in children;
- provide parenting support so that parents and carers of children living in poverty can improve the home learning environment to give children a better start in life;
- use the resources of the *Basic Skills Agency* and programmes such as the *Family Literacy Scheme* and numeracy schemes to give children a better start in life; and
- make special efforts to target and to enable smokers in families living in poverty to quit.

5 Conclusions and recommendations

Whilst the health of Barnet people is generally better than average, we have to ask ourselves whether we are content with this or whether we could (and should) do better. There are significant health inequalities in the borough and the people affected experienced below-average health, and poorer health than, for example, the majority of those people living in the Borough's most affluent areas. And, as local research has shown, there are a large number of people in Barnet with unrecognised – and thus unmanaged – risk factors for avoidable ill-health. For some, these risks are direct, for example, smoking, obesity; for others, they are 'indirect', for example poor educational achievement (principally attributable to a poor home learning environment) which significantly increases the risk of poorer health in youth, adulthood and older life. I therefore suggest that the answer to the question should be 'Yes! We can do better and we should!' If we take large-scale action in these areas we can improve the health of Barnet's people further. Not only will this improve people's well-being, it will both reduce health and social care costs^{xx} and contribute to improving the borough's prosperity; people who are fit and well are more able to work and to pay taxes and are less reliant (if at all) on state benefits and publically-funded services such as health and social care.

5.1 'Direct' ill-health prevention

We have two very significant opportunities for disease prevention; adequately addressing these two areas will lead to significant further improvements in people's well-being in Barnet and reduce the future need for health and social care services:

1. tabacco control – that is, encouraging and enabling people, principally children, not to start smoking and, for smokers, encouraging and enabling them to quit; and
2. reducing the prevalence of overweight and obesity, that is, encouraging and enabling people not to become overweight, and for those who are overweight and for those who are obese, to encourage and enable them to lose a significant amount of weight.

Both of these lifestyle choices, for which there are clinically and cost-effective interventions to enable people to be healthier, need to involve primary, secondary and tertiary prevention. However, in the main, our interventions so far have

xx Aneurin Bevan, the government minister responsible for the creation of the NHS in 1948, hoped that, as people's health improved, the cost of the NHS would fall. [See <http://www.nationalarchives.gov.uk/cabinetpapers/alevelstudies/management-1950.htm> (accessed 14 March 2012)]. Indeed, it was the rising cost of the NHS that led to the introduction of prescription charges in 1952. The NHS (and probably social care) has always cost more each year as the potential to provide services and demand for them has increased. If Northcote Parkinson had been writing about the NHS rather than the Civil Service in his article on 'Parkinson's Law' in *The Economist* in 1955, he might have said that 'Patient demand expands to fill the resources available'. {A copy of Parkinson's original paper can be found at http://www.berglas.org/Articles/parkinsons_law.pdf (Accessed 14 March 2012)] Of course, we know that patient demand for NHS care exceeds the resources available. But, crucially, we need to remember Sir Derek Wanless's exhortation that we should create a national health service rather than continue with a national sickness service. This means, I suggest, that we should invest savings into more disease prevention activities rather fund things that previously have not been funded. Only in this way, as anticipated by Wanless, do we stand any chance of levelling-off the proportion of gross domestic product required for the health service. I suggest that the same principle is likely to apply to social and children's care services

concerned those who are already smokers and/or who are already overweight or obese (that is, secondary and tertiary prevention).

5.1.1 *Tobacco control*

We need to put more effort into stopping children from taking up smoking because most smokers start to do so before they turn 18 years of age and smoking is as addictive as taking heroin. Put another way, most smokers become nicotine addicts as children ; it is easier not start smoking than it is to give up.

We need to put more effort into helping people who smoke to give up. This will benefit both them and others, whose exposure to second-hand smoke will be reduced. To have the greatest impact, we need to concentrate our efforts especially on:

- women who smoke when they are pregnant;
- people living in more deprived areas, especially those who are living in poverty; and
- people who have additional risk factors, such as –
 - overweight and obesity,
 - diabetes,
 - high blood pressure,
 - raised cholesterol levels,
 - a family history of cardiovascular disease.

I would encourage the NHS in Barnet and Barnet Council to aim for Californian and Swedish levels of smoking prevalence. This will be a considerable challenge but, as shown in Table 1, we would substantially reduce mortality (and thus morbidity and the health and social care costs associated with this) if we were to achieve this.

5.1.2 *Enabling people to avoid overweight and obesity*

We need put more effort into helping people avoid becoming overweight and obese. We also need to put more effort into helping people who are overweight avoid becoming obese, and more effort into helping those who are obese to lose a significant amount of weight to reduce their health risks. To have greatest impact we need to concentrate our efforts especially on:

- people living in more deprived areas; and
- people who have additional risk factors, such as –
 - smoking,
 - diabetes,
 - high blood pressure,
 - raised cholesterol levels,
 - a personal history of cardiovascular disease,
 - a family history of cardiovascular disease and/or diabetes.

I would encourage the NHS in Barnet and Barnet Council to develop and, crucially, to implement, a strategy that reduces overweight and obesity significantly across the borough. This needs to address both enabling children and adults to avoid becoming overweight and obese in the first place as well as enabling and supporting children

and adults who are overweight or obese to lose a significant amount of weight. I also consider it important to recognise the benefits of bariatric surgery in eliminating, long-term, the signs and symptoms of diabetes in a very high proportion of people with obesity and diabetes. By inference, enabling people to control their weight effectively will also contribute to reducing the risks of diabetes in people whose weight is not so high that the only viable management option is bariatric surgery.

5.2 'Indirect' ill-health prevention: enabling greater educational attainment amongst children living in poverty in Barnet

Educational attainment is one of the most significant determinants of health. An inadequate home learning environment of pre-school children significantly reduces their ability to benefit from the subsequent educational opportunities offered at schools, no matter how good those schools are.

A major component of the home learning environment is parents and carers reading to and reading *with* their children. Another is parental aspiration and the degree of cognitive stimulation that they provide for their children at home.

There is a large body of evidence that interventions that lead to improvements in the home learning environment of children living in some of the poorest families, principally by improving parenting skills (especially parent literacy and numeracy, and thus child literacy and numeracy), statistically significantly improve their children's cognitive, emotional and social ability. Importantly, such interventions have been shown to improve promote school performance, reduce crime, foster work productivity and reduce teenage pregnancy and to do so cost-effectively.

I would encourage the NHS in Barnet and Barnet Council to actively identify families with children living in poverty and to take specific actions to improve parenting capability and confidence and, thereby, to improve the home learning environment for children in these families.

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