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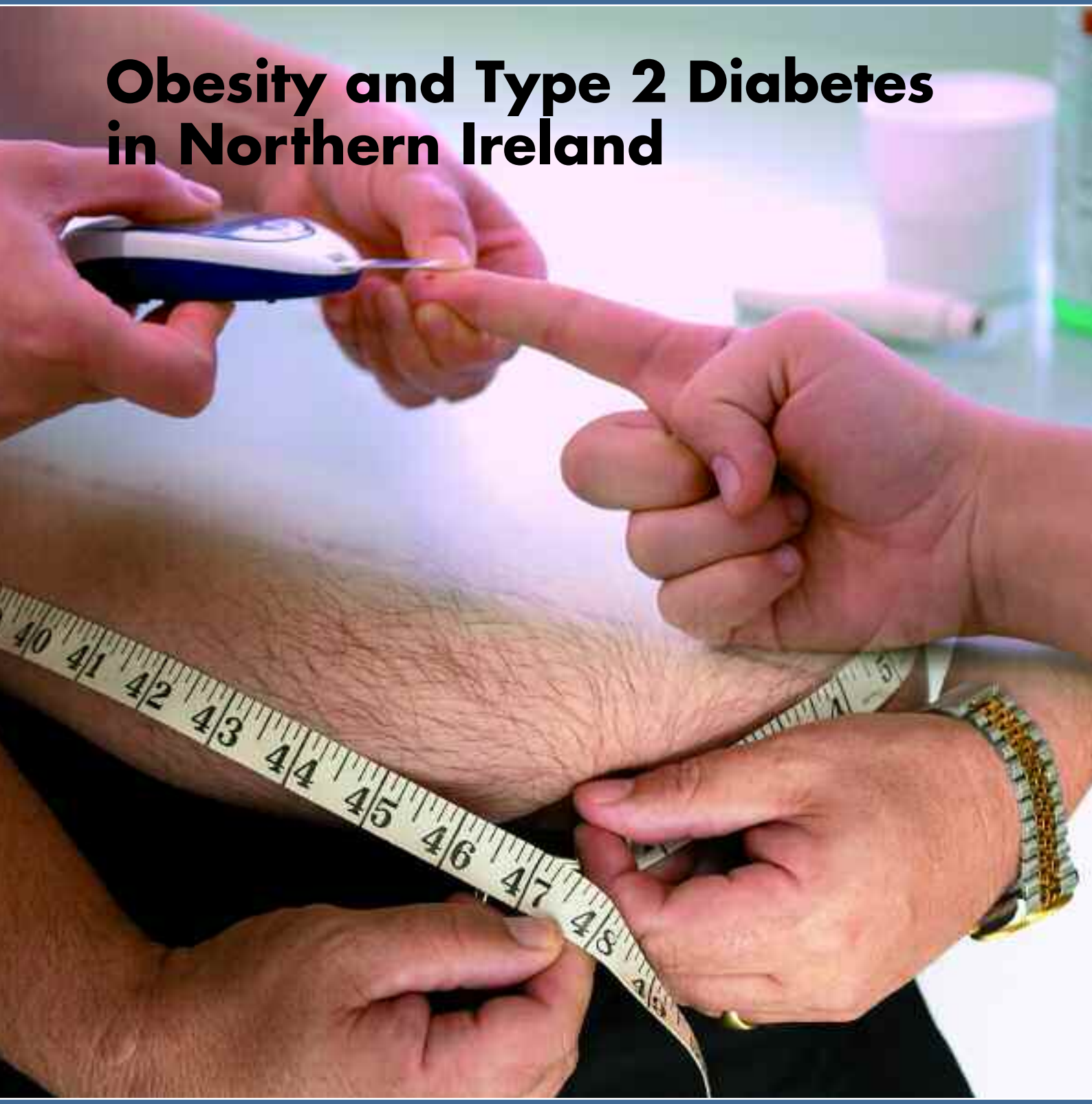
Northern Ireland Audit Office

# Obesity and Type 2 Diabetes in Northern Ireland



REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
NIA 73/08-09 14 January 2009


Report by the Comptroller and Auditor General for Nor thern Ireland

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# Obesity and Type 2 Diabetes in Northern Ireland

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*J M Dowdall CB*
Comptroller and Auditor General

Northern Ireland Audit Office
14 January 2009

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# Abbreviations

| | |
|---|---|
| BMI | Body Mass Index |
| CREST | Clinical Resource Efficiency Support Team |
| IDF | International Diabetes Federation |
| PSA | Public Service Agreement |
| SMART | Specific Measurable Achieveable Realistic Time-bound |
| WHO | World Health Organisation |

# Executive Summary

# Executive Summary

1. Today, some of the major threats to good health are largely avoidable. On a global basis, physical inactivity, unhealthy eating and being overweight are important preventable causes of chronic diseases such as Type 2 diabetes. The social and economic costs of this disease are enormous and have the potential to increase significantly over the coming years.

2. Health promotion activities aim to reduce the incidence of chronic disease by encouraging people to adopt healthier lifestyles. The audit examined what contribution the Department of Health, Social Services and Public Safety's (Department) investment in health promotion had made in preventing the occurrence of Type 2 diabetes.

3. The increasing levels of obesity and diabetes in Northern Ireland are of concern to the Department, and the link between the two conditions is well known and acknowledged. The need to address obesity through addressing lifestyle factors such as physical activity and eating habits is also well established and the Department told us that it has been part of its overall public health approach to the issue for a number of years – reflected in the work carried out in the mid-1990s in respect of a physical activity strategy and work to develop a food and nutrition strategy. More recently, as the evidence base for childhood obesity has become clearer, the Department has put increased focus on tackling childhood obesity through a cross-departmental strategy *Fit Futures*[1]. In addition, a Public Service Agreement target has been established aimed at halting the rise in childhood obesity.

4. Following the publication in Great Britain of *Foresight – Tackling Obesities: Future Choices*[2] in October 2007, the Department adopted a life course strategic approach to obesity, putting in place an Obesity Steering Group, supported by four Advisory Groups addressing the issues of physical activity, food and nutrition, education and prevention, and data collection and research. These groups will take forward the *Fit Futures* recommendations and also advise the Department on the development of a long-term life course strategic framework to address obesity across the whole of the Northern Ireland population.

5. While we acknowledge that addressing the problem of obesity has been a Departmental priority since the mid-1990s, the full impact of its primary prevention strategies on reducing the burden of Type 2 diabetes has still to be realised. Against this background, our review looked at how health promotion activities could be strengthened in order to deliver behavioural interventions capable of providing cost-effective benefits. In addition, our examination also found that there was scope to improve the evidence base and the targeting and monitoring of effort.

1 *Fit Futures: Focus on Food, Activity and Young People,* Report to the Ministerial Group on Public Health, December 2005.
2 *Foresight – Tackling Obesities: Future Choices,* Government Office for Science, Department of Innovation, Universities and Skills, DIUS/2K/10/07/NP, October 2007.

# Part One:
# Introduction

# Part One: Introduction

## Obesity levels in Northern Ireland have grown rapidly

1.1 Over the last 30 years, lifestyle changes in exercise and eating habits have contributed to more people in Northern Ireland becoming overweight or obese. The prevalence of obesity in all age groups poses such a serious problem that the World Health Organisation has described it as a "global epidemic".[3] Body mass index (weight (kg)/height (m)$^2$) is a commonly used definition of overweight and obesity. A cut-off point of 25kg/m$^2$ is recognised internationally as definition of adult overweight, and 30kg/m$^2$ for adult obesity.

1.2 The Health and Social Wellbeing Survey 2005-06[4] found that a quarter of all men and 23 per cent of women in Northern Ireland were obese. The Survey findings also show that this represents an overall increase of 26 per cent in adult obesity since 1997 – a rise in the region of 47 per cent for males and 15 per cent for females.

1.3 Appendix 1 sets Northern Ireland obesity levels in the context of other European Union countries. While this data is helpful in illustrating that obesity is an international problem which affects some countries more than others, the surveys on which the data is based are not comparable because of differences in time periods covered, age range of those surveyed and methodology. Moreover, the inclusion of self-reported survey data may underestimate the true prevalence of obesity. Given the importance of obesity as a health issue, the data compiled in Appendix 1 demonstrate that, in general, there is a lack of comprehensive, up to date comparative data on this issue. In 2007, the Public Accounts Committee at Westminster reported on obesity among children in England. It also drew attention to a delay between the collection of data and the publication of results. A summary of the Committee's conclusions and recommendations is included at Appendix 2.

## Weight gain is a major influence on the prevalence of Type 2 diabetes

1.4 Taken together, physical inactivity and unhealthy eating are important preventable causes of chronic disease and their impact is increasing. The rise in Type 2 diabetes is one example of a chronic disease that is closely connected to these risk factors. Type 2 diabetes is the most common form of diabetes.[5] It occurs because the body produces too little insulin and is unable to properly use the insulin that is secreted. It usually occurs in older people although it is becoming more common amongst younger people, partly due to lifestyle factors such as diet, lack of physical activity and obesity. Type 2 diabetes accounts for approximately 85-90 per cent of all cases of diabetes in European countries.

1.5 These risk factors also underpin a number of other chronic diseases. For example,

3 www.who.int *(accessed September 2007)*
4 NISRA Health and Social Wellbeing Survey 2005-06
5 *Type 1 diabetes is an autoimmune disease in which the body produces little or no insulin, a hormone needed to convert food into energy. To survive, people with Type 1 diabetes must regularly inject themselves with insulin. Most often diagnosed in children or young adults, this form of diabetes accounts for between 10-15 per cent of all cases. Type 1 diabetes itself is not preventable, although many of its complications can be prevented by careful management.*

without adequate management of the condition a person with Type 2 diabetes is two to five times more likely than the general population to have a heart attack or stroke.[6] Action on diabetes prevention would thus also reduce the incidence of other diseases such as cardiovascular disease, certain cancers and asthma. The failure to prevent diabetes, and delays in diagnosing diabetes, lead to severe complications such as amputation, blindness and kidney failure. These complications have an enormous impact both on the person suffering from the disease and their family. These unnecessary complications put greater pressure on health systems and budgets and represent a very large share of preventable hospital treatments.

1.6 The effect of weight change is crucial in the prevention of diabetes. A study in Finland[7] concluded that a weight increase of between 2-3 kilogrammes doubles the risk of an overweight person developing Type 2 diabetes. On the other hand, the diabetes risk of an overweight person is reduced by 80 per cent if he/she succeeds in losing 10 kilogrammes. Appendix 3 outlines the factors taken into account in assessing diabetes.

## Audit Objective

1.7 The objective of the review will be to examine the effectiveness of the Department's health promotion strategies in influencing the risk factors of unhealthy eating and physical inactivity which can lead to the occurrence of a chronic disease such as Type 2 diabetes.

6 *Prevention and early detection of vascular complications of diabetes,* S. Marshall and V. Flyvbjerg, British Medical Journal, Vol. 333, pp 475-480, September 2006.

7 *Prevention of Type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance,* J. Tuomilehto et al, New England Journal of Medicine, Volume 344: 1343-1350, No.18, May 2001

# Part Two:
# Impact of risk factors on Type 2 diabetes

# Part Two:
# Impact of risk factors on Type 2 diabetes

## Type 2 diabetes is a growing problem

2.1 The World Health Organisation (WHO) estimated that in 1985, 30 million people worldwide had diabetes. This figure rose to an estimated 135 million in 1995 and an estimated 177 million in the year 2000. These figures are expected to rise to at least 366 million by 2030[8]. In 2003 the International Diabetes Federation (IDF) e-Atlas estimated that there were 194 million people between the ages of 20-79 years living with (either diagnosed or undiagnosed) diabetes (both Type 1 and Type 2). This equated to a global prevalence rate of 5.1 per cent. By 2025 these figures are expected to rise to 333 million with a global prevalence rate of 6.3 per cent[9].

2.2 While available statistical data can vary, the seriousness and urgency of the changes in obesity rates are also illustrated by the number of people in Northern Ireland with Type 2 diabetes. In 2005 the Republic of Ireland and Northern Ireland's Population Health Observatory (INIsPHO) set up a Working Group to adapt the PBS model to estimate population prevalence of diabetes on the island of Ireland. The PBS Diabetes Population Prevalence Model (developed by Yorkshire and Humber Public Health Observatory (YHPHO), Brent NHS Primary Care Trust, and the University of Sheffield School of Health Related Research (ScHARR) and adapted for use on the island of Ireland by the Irish Diabetes Prevalence Working Group) was used to develop the forecasts of population prevalence. The model accounts for age, gender, ethnicity and socio-economic factors which are known to affect the prevalence of diabetes. While the model provides a single methodology and has been rigorously tested in England, it does have some limitations. The advantages and disadvantages of the model are outlined in more detail at Appendix 4.

2.3 Forecasts were developed to account for changes in the population structure together with three scenarios representing different trends in Body Mass Index (BMI) distribution over the period 2005 – 2015. Figure 1[10] shows that there were over 62,000 people (5.1 per cent of the population) with Type 2 diabetes in 2005. Figure 1 also compares Northern Ireland's estimated prevalence of diabetes with the Republic of Ireland at five year intervals using three different scenarios.

2.4 Assuming the BMI levels remain at the 2005 level (scenario 1) the model forecasts that the population prevalence of diabetes in 2015 will be 5.3 per cent (70,464 adults) in Northern Ireland and 4.6 per cent (160,002 adults) in the Republic of Ireland, an increase of around 8,000 and 31,000 adults respectively. This reflects population changes only.

2.5 If the levels of BMI do not remain at the 2005 level but instead obesity increases in a linear fashion, with underweight/normal rates showing a slow exponential decrease (scenario 2), the model forecasts that the population prevalence of diabetes in 2015 will rise to 5.9 per cent

8 *Chronic disease information sheets – Diabetes*, WHO, available from: http://www.who.int/dietphysicalactivity/publications/facts/diabetes/en/index.html
9 IDF estimates. Available from: http://www.eatlas.idf.org/Prevalence/All_diabetes/
10 *Making Diabetes Count: What does the future hold?*, The Irish Diabetes Prevalence Working Group, The Institute of Public Health in Ireland, May 2007.

**Figure 1: Forecasts of population prevalence of adult Type 2 diabetes – 2010 and 2015**

| | Northern Ireland | | | Republic of Ireland | | |
|---|---|---|---|---|---|---|
| **Scenario 1** | **Estimated Population*** | **Estimated number of cases** | **Estimated Prevalence %** | **Estimated Population*** | **Estimated number of cases** | **Estimated Prevalence %** |
| 2005 | 1,230,947 | 62,287 | **5.1** | 2,981,300 | 129,052 | **4.3** |
| 2010 | 1,287,592 | 65,169 | **5.1** | 3,222,976 | 140,502 | **4.4** |
| 2015 | 1,335,852 | 70,464 | **5.3** | 3,466,961 | 160,002 | **4.6** |
| | | | | | | |
| **Scenario 2** | | | | | | |
| 2005 | 1,230,947 | 62,287 | **5.1** | 2,981,300 | 129,052 | **4.3** |
| 2010 | 1,287,592 | 69,217 | **5.4** | 3,222,976 | 149,283 | **4.6** |
| 2015 | 1,335,852 | 79,225 | **5.9** | 3,466,961 | 180,028 | **5.2** |
| | | | | | | |
| **Scenario 3** | | | | | | |
| 2005 | 1,230,947 | 62,287 | **5.1** | 2,981,300 | 129,052 | **4.3** |
| 2010 | 1,287,592 | 70,600 | **5.5** | 3,222,976 | 152,407 | **4.7** |
| 2015 | 1,335,852 | 81,767 | **6.1** | 3,466,961 | 186, 132 | **5.4** |

*Source: Irish Diabetes Prevalence Working Group, May 2007*

* Due to lack of available data, the model and forecasts assume zero prevalence of T ype 2 diabetes in children and young adults less than 20 years of age. This may cause a slight underestimate in prevalence, par ticularly by 2015.

(79,225 adults) in Northern Ireland and 5.2 per cent (180,028 adults) in the Republic of Ireland, an increase of just under 17,000 and 51,000 adults respectively. These are the most realistic forecasts. If obesity increases at an exponential rate with the underweight/ normal rates showing a slow exponential decrease (scenario 3) then the model forecasts that the population prevalence of diabetes in 2015 will be 6.1 per cent (81,767 adults) in Northern Ireland and 5.4 per cent (186,132 adults) in the Republic of Ireland, an increase of around 19,500 and 57,000 adults respectively.

# Part Two:
# Impact of risk factors on Type 2 diabetes

2.6 In addition to prevalence rates being higher in Northern Ireland than the Republic of Ireland, another interesting feature of those who suffer from Type 2 diabetes is that females display a higher incidence of the disease (Figures 2 and 3).

**Figure 2: Estimated prevalence of Type 2 diabetes in adult males 2010 - 2015**

| Scenario 1 | Northern Ireland | | | Republic of Ireland | | |
|---|---|---|---|---|---|---|
| | Estimated Population* | Estimated number of cases | Estimated Prevalence % | Estimated Population* | Estimated number of cases | Estimated Prevalence % |
| 2005 | 589,721 | 23,790 | **4.0** | 1,469,300 | 51,719 | **3.5** |
| 2010 | 618,626 | 25,542 | **4.1** | 1,585,357 | 57,926 | **3.7** |
| 2015 | 642,413 | 27,779 | **4.3** | 1,706,745 | 66,652 | **3.9** |
| | | | | | | |
| **Scenario 2** | | | | | | |
| 2005 | 589,721 | 23,790 | **4.0** | 1,469,300 | 51,719 | **3.5** |
| 2010 | 618,626 | 27,419 | **4.4** | 1,585,357 | 62,183 | **3.9** |
| 2015 | 642,413 | 31,862 | **5.0** | 1,706,745 | 76,448 | **4.5** |
| | | | | | | |
| **Scenario 3** | | | | | | |
| 2005 | 589,721 | 23,790 | **4.0** | 1,469,300 | 51,719 | **3.5** |
| 2010 | 618,626 | 28,739 | **4.6** | 1,585,357 | 65,175 | **4.1** |
| 2015 | 642,413 | 34,419 | **5.4** | 1,706,745 | 82,585 | **4.8** |

*Source: Irish Diabetes Prevalence Working Group, May 2007*

* Due to lack of available data, the model and forecasts assume zero prevalence of Type 2 diabetes in children and young adults less than 20 years of age. This may cause a slight underestimate in prevalence, particularly by 2015.

**Figure 3: Estimated prevalence of Type 2 diabetes in adult females 2010 - 2015**

| | Northern Ireland | | | Republic of Ireland | | |
|---|---|---|---|---|---|---|
| **Scenario 1** | **Estimated Population*** | **Estimated number of cases** | **Estimated Prevalence %** | **Estimated Population*** | **Estimated number of cases** | **Estimated Prevalence %** |
| 2005 | 641,226 | 38,497 | **6.0** | 1,512,000 | 77,333 | **5.1** |
| 2010 | 668,966 | 39,626 | **5.9** | 1,637,619 | 82,576 | **5.0** |
| 2015 | 693,439 | 42,685 | **6.2** | 1,760,216 | 93,350 | **5.3** |
| | | | | | | |
| **Scenario 2** | | | | | | |
| 2005 | 641,226 | 38,497 | **6.0** | 1,512,000 | 77,333 | **5.1** |
| 2010 | 668,966 | 41,798 | **6.2** | 1,637,619 | 87,101 | **5.3** |
| 2015 | 693,439 | 47,363 | **6.8** | 1,760,216 | 103,581 | **5.9** |
| | | | | | | |
| **Scenario 3** | | | | | | |
| 2005 | 641,226 | 38,497 | **6.0** | 1,512,000 | 77,333 | **5.1** |
| 2010 | 668,966 | 41,861 | **6.3** | 1,637,619 | 87,232 | **5.3** |
| 2015 | 693,439 | 47,348 | **6.8** | 1,760,216 | 103,547 | **5.9** |

*Source: Irish Diabetes Prevalence Working Group, May 2007*

* Due to lack of available data, the model and forecasts assume zero prevalence of Type 2 diabetes in children and young adults less than 20 years of age. This may cause a slight under estimate in prevalence, particularly by 2015.

## Need for action

2.7 Failure to adequately address the rise in a chronic disease such as diabetes will affect individuals and their families, and the wider community, in terms of higher health care costs and reduced productivity. Figure 4 shows the hospital admissions[11] and bed days relating to patients whose primary condition is diagnosed as diabetes. Currently there are around 4,000 hospital admissions a year, with patients taking up about 15,000 bed days. While there has been an increase of 12 per cent in admissions since 2001-02, there has been an 8 per cent reduction in bed days over the same period. The Department pointed out that the reduction in emergency admissions was indicative of success in the better management of the condition.

11 These figures relate to episodes of care and, therefore, do not relate to individuals. Patients may be admitted to hospital more than once in a year

# Part Two:
# Impact of risk factors on Type 2 diabetes

**Figure 4: Admissions to hospital of patients with a primary diagnosis of diabetes**

| | 2001-02 | 2006-07 |
|---|---|---|
| **Admissions:** | | |
| Elective | 2,140 | 2,703 |
| Emergency | 1,536 | 1,427 |
| Other | 51 | 45 |
| **Total** | **3,727** | **4,175** |
| | | |
| **Bed Days:** | | |
| Elective | 3,652 | 3,945 |
| Emergency | 11,286 | 10,118 |
| Other | 1,089 | 747 |
| **Total** | **16,027** | **14,810** |

*Source: Department*

## Obesity and diabetes can have costly consequences

2.8 The Health Select Committee[12] at Westminster estimated that the economic cost of obesity in England was between £3.3 and £3.7 billion per year, of which £1 billion was directly attributable to the costs of treating obesity and its consequences. In Northern Ireland the cost attributable to lack of physical activity includes over 2,100 deaths per annum, equivalent to over 18,000 life years lost and 1.2 million working days lost each year.[13] No robust estimate of the overall health care costs of treating diabetes was available from the Department, however, Diabetes UK[14] recently published a report which stated that ten per cent of National Health Service spending in Great Britain – or £1 million per hour - went on treating those suffering from diabetes.

2.9 Given the expensive medical consequences of diabetes, the effective targeting of health promotion strategies can help to reduce the overall cost burden of the disease. Part 3 reviews the actions which have been taken in promoting physical activity and healthy eating to prevent Type 2 diabetes.

12 *Obesity,* Third Report of Session 2003-04. House of Commons Health Committee. HMSO, 2004.
13 *Investing for Health,* DHSSPS, 2002
14 *Diabetes:* The Silent Assassin, Diabetes UK, October 2008

# Part Three:
# The public health approach to preventing Type 2 diabetes

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## Prevention is an essential part of efforts to control Type 2 diabetes

3.1 The prevention of Type 2 diabetes requires a focus on controlling the environmental factors that pre-dispose individuals to the disease, and on encouraging people's capacity to improve their health. In the case of Type 2 diabetes, preventative action first needs to address risk across the entire population, as it is difficult to identify with certainty who will develop the disease. Prevention will then need to identify specific populations that are at an increased risk of developing Type 2 diabetes, and use early detection and intervention programmes to inform and help those populations.

3.2 Primary prevention is essential because there are no simple solutions to Type 2 diabetes. Indeed prevention of the disease is backed by compelling research evidence:

- a Finnish diabetes prevention study (see footnote 7) achieved a 58 per cent relative risk reduction between the intervention and the control populations through a combined diet and exercise programme. This involved relatively limited weight loss (about 5kg)

- an American diabetes prevention programme[15] tested both a lifestyle modification intervention and medication to reduce the development of diabetes. It found that the lifestyle modification programme achieved a 58 per cent reduction in the incidence of diabetes and this was more effective than the use of medication (only a 38 per cent risk reduction)

- the Chinese Da Qing Impaired Glucose Tolerance and Diabetes Study[16] also achieved reductions of between 31 per cent and 46 per cent using different interventions involving diet and exercise.

## The changes that prevention seeks to bring about are simple to describe, but difficult to achieve

3.3 Many people carry a genetic predisposition to developing Type 2 diabetes. Although they cannot change their genetic make-up, they may be able to minimise the conditions that induce their genetic make-up to be expressed. To do this they would have to maintain a healthy weight and be physically active throughout their lives, ideally from infancy on. In particular, they would have to avoid abdominal obesity – that is, putting on excess fat deposits around the waist.

3.4 Several steps of prevention are very obvious, such as being physically active and reducing calorie intake. But clearly, as trends in recent years demonstrate, taking these simple steps is easier said than done. Studies consistently show that most children are no longer as physically active as they should be, and that activity declines further with age. At the same

15 *Reduction in the incidence of type 2 diabetes with lifestyle inter vention or metformin,* W.C. Knowler, E. Barrett-Connor, S.E. Fowler, R.F. Hamman, J.M. Lachin, E.A. Walker and D.M. Nathan, Diabetes Prevention Program Research Group, New England Journal of Medicine, 346: 393-403, 2002

16 *Impaired glucose tolerance and its relationship to ECG-indicated coronary heart disease and risk factors among Chinese,* X.R.Pan, Y.H. Hu, G.W. Li, P.A. Liu, P.H. Bennett and B.V. Howard, Diabetes Care, Vol 16, Issue 1 150-156, 1993, American Diabetes Association.

time, rates of excess weight and obesity in the population are rising, and abdominal obesity is increasing even faster.

3.5 Effective prevention is difficult to achieve because the factors that shape people's health are complex and intertwined. Step changes are required in both social norms and social settings. Indeed primary prevention has had only a few large scale successes: for example, declining smoking rates and the reduction in tolerance of drinking and driving. The former is a good example of successful prevention. For several decades the government has made a concerted effort to reduce the percentage of people who use tobacco through a range of strategies such as banning advertising, requiring warning labels on cigarette packets and banning smoking in public places.

3.6 This part of the report examines what interventions have been put in place in Northern Ireland to address the linked problems of obesity and Type 2 diabetes.

## A number of prevention initiatives are currently underway in Northern Ireland

### Physical Activity

3.7 In the late 1990s the government in Northern Ireland invested heavily in new initiatives to encourage healthier lifestyles. With relevance to obesity, this included investment of approximately £500,000 a year in support of a Physical Activity Strategy[17] which set two targets by which to measure progress towards improved health of the population. These sought to reduce the number of people who were sedentary and to increase the number of people who exercised to recommended levels:

- *by 2002 the proportion of men and women aged 16+ who are classified as sedentary should be reduced from 20 per cent to 15 per cent; and*

- *by 2002 the proportion of men and women aged 16+ who achieve recommended age-related activity levels should be increased from 30 per cent of men and 20 per cent of women to 35 per cent of men and 25 per cent of women.*

3.8 These targets proved difficult to achieve, however, and a review of the Strategy in 2002 concluded that there was a continuing need for a future Strategy with SMART aims, objectives and targets. A new draft Strategy and Action Plan was prepared and a series of targets set for 2010; this process was, however, then subsumed within the development of *Fit Futures* (see paragraph 3). This was associated with a new Public Service Agreement Target of aiming to reduce the rise in childhood obesity by 2011. This is described in more detail below. Other initiatives with relevance to physical activity include the Workplace Health Strategy, the Promoting Mental Health Strategy and Action Plan, the Tobacco Action Plan, the impending Food and

17 *Physical Activity: an investment in public health,* Health Promotion Agency for Northern Ireland, 1996

# Part Three:
# The public health approach to preventing type 2 diabetes

Nutrition Strategy & Action Plan, local fall prevention strategies, the Northern Ireland Cycling Strategy, the Northern Ireland Walking Action Plan, the development of the Long Term Athlete Development model and the Community Support Programme.

## Obesity

3.9 More recently, the Northern Ireland Assembly's *Programme for Government* identified working for a healthier people as one of five overarching priorities. This included commitments to increase physical activity and to provide opportunities for more active lifestyles by developing cycle and pedestrian networks, and to promote the benefits of sport. The cross-departmental public health strategy, *Investing for Health,* was published in March 2002 and sets out how these commitments are to be met. The strategy outlines the approach to improving health and wellbeing, reducing health inequalities and also provides a framework for efforts to achieve this. The

**Figure 5: Fit Futures Priorities for Action**

| Priority Area | Issues / Action required |
|---|---|
| Develop joined-up healthy public policy | • address disjointed approach to promotion of physical activity, sport and leisure<br>• address conflicting policies sometimes being promoted by government departments and agencies in relation to food policy and the food industry |
| Provide real choice | • food industry should respond to introduction of controls on advertising and promotion of foods to children<br>• food industry should introduce agreed nutritional signposting system<br>• create demand for healthy options through public sector food procurement<br>• tackle barriers to healthy food<br>• opportunities for active play should be available and accessible |
| Support healthy early years | • extend healthy schools programme to early years settings<br>• establish common standards for nutrition and physical activity in these settings and monitor compliance |
| Create healthy schools | • integrate health improvement planning into school development planning<br>• develop active schools programme |
| Encourage development of healthy communities | • community based approaches such as Health Action Zones |
| Build an evidence base | • systematic surveillance of obesity levels, nutrition and activity levels |

*Source: Department*

problem of high obesity levels is addressed specifically through a Public Service Agreement target:

- by March 2010, halt the rise in obesity.

3.10 In response to the obesity crisis, a cross-departmental taskforce was established in August 2004, to examine options for preventing the rise in levels of overweight and obesity in Northern Ireland. The taskforce reported in December 2005.[18] It identified six priorities for action (see Figure 5).

3.11 An implementation plan for Fit Futures was drafted during 2006 and consulted on in early 2007. This set out a range of key tasks and target dates under the six priority areas. A Fit Futures Programme Board, led by the Department, was established in April 2007 to oversee implementation. (For more recent developments, see paragraph 4.4).

**Diabetes**

3.12 The incidence of Type 2 diabetes can be reduced by preventative healthcare strategies. In addition, many people with Type 2 diabetes remain undiagnosed and this can increase the risk of developing complications by the time of diagnosis. The prevention and early detection of diabetes is the responsibility of all those professionals who deliver diabetes care in the community and in hospitals, as well as the Department and the four health and social services Boards, which have a strategic role in shaping and commissioning services.

3.13 A shift towards prevention and early detection has been given impetus by a joint Diabetes UK (NI)/Clinical Resource Efficiency Support Team (CREST) taskforce which was set up in Northern Ireland in 2001. Its remit was to review progress since a previous CREST report in 1996 on diabetic services, and to develop a framework for diabetic services in Northern Ireland. The taskforce reported in June 2003 and identified prevention and early detection and targeting of vulnerable groups as two of five areas for development in diabetic services within the region. The Department told us that resources provided to general practices had enabled primary care teams to detect diabetes more effectively, particularly as part of cardiovascular risk assessment. Primary care professionals are also expected to target high risk groups such as the obese, those from ethnic minorities, and those with a strong family history.

18 *Fit Futures: Focus on Food, Activity and Young People,* Report to the Ministerial Group on Public Health, December 2005

# Part Four:
# Strengthening the approach to public health

# Part Four:
# Strengthening the approach to public health

4.1 Today our society enjoys the benefits of choices such as sedentary computer games and the easy availability of calorie-rich food - choices whose side effects will lead to increasing levels of Type 2 diabetes. The increase in prevalence will continue unless significant interventions occur. Some positive steps have been taken to address these issues and there are plans to do more. However, to date, the combined efforts of the Department and other agencies have not significantly slowed the increase in obesity which has underpinned a similar rise in preventable Type 2 diabetes.

4.2 Given the long term nature of programmes in place to achieve the Department's general policy goal of preventing the occurrence of Type 2 diabetes, we do not think it useful or, indeed, feasible to make detailed recommendations on the way forward. Instead we recommend an organised process for taking action to bring about improvement.

## A coherent policy framework

4.3 *Investing for Health* and *Fit Futures* provide a coherent structure and common branding for a wide range of health promotion programmes. They were set up as the whole-of-government initiative to coordinate action on obesity. So far, the Ministerial Group on Public Health which has responsibility for implementing and monitoring *Investing for Health* has focused on pulling existing initiatives into a consistent framework and encouraging cross-agency coordination.

4.4 The Department has now put in place an Obesity Prevention Steering Group. This cross-sectoral group, with representation from practitioners, policy makers and researchers, monitors the implementation of the 70 recommendations in *Fit Futures* (see paragraph 3). It is also developing a Strategic Framework for addressing obesity across the life course, following closely the recommendations in the *Foresight Report* (see paragraph 4) which demonstrated the complexity of the issue. As part of this approach, four Policy Advisory Groups have been established – these cover physical activity, food and nutrition, education and prevention, and data and research. This will facilitate an informed, research-led integrated approach to addressing obesity and associated conditions.

4.5 To ensure that the Department continues to take forward its strategy for obesity and diabetes effectively, we consider that the process will need to:

- include and deliver programmes demonstrated by research to be effective;
- provide enough resources to deliver programmes with real impact and sufficient coverage of the region;
- ensure effort and investment can be sustained long enough to get results;

- set specific objectives and targets relating to healthy eating for target population groups;
- provide ongoing measures of success;
- have the flexibility to reallocate or increase resources in response to emerging evidence on performance and the target outcomes; and
- ensure that the governance arrangements covering the whole-of-government nature of its approach to obesity and diabetes are capable of driving effective outcomes.

4.6 The initiatives outlined in Part 3 demonstrate that the Department is committed to action across primary prevention, early detection and intervention in relation to both obesity and Type 2 diabetes. However, its ability to link these mutually reinforcing initiatives in the management and prevention of a chronic disease like Type 2 diabetes will be an important contribution to success. Addressing the risk factors underpinning the rise in obesity and Type 2 diabetes requires that the two policy directions are framed so that progress measures and outcomes can be aligned.

4.7 An important aspect of performance reporting is making clear how the measure being reported links to Departmental activity. Thus, where there are targets set for lifestyle changes, such as increased physical activity levels/reduced obesity levels, explaining their potential impact on the prevention of Type 2 diabetes will be an important part of making these targets meaningful accountability tools.

4.8 Comprehensive performance reporting will need to include meaningful measures for each type of prevention initiative. As noted at paragraph 3.9, a PSA target has been set which is aimed at *halting the rise in obesity by March 2010*. While this measure provides a good, high-level target, we consider that it needs to be expanded in breadth, for example, to focus on gender differences, children and socio-economic groupings. Moreover, we also note that currently there are no PSA targets which relate to reducing the incidence of diabetes. Rather, the Department's Priorities for Action planning document 2006-08 includes two targets which are aimed at more effective care arrangements for those managing the disease and retinopathy screening.

4.9 In our view, the setting of measurable targets that align with those for obesity will be crucial to ensuring there is decisive action to tackle diabetes. Headline measures which may be used in this process include:

- the proportion of people consuming at least the recommended daily fruit and vegetable intake;
- the proportion of people sufficiently physically active to obtain a health benefit;

# Part Four:
## Strengthening the approach to public health

- the proportion of people overweight or obese; and
- potentially preventable hospitalisation.

Some illustrative targets which have been established in Australia[19] should also be given serious consideration:

*For cost-effective early detection and intervention: reducing the number of undiagnosed persons with Type 2 diabetes and reducing the risk of people progressing to Type 2 diabetes; and*

*For secondary care: reducing the proportion of avoidable hospital admissions associated with Type 2 diabetes.*

4.10 We acknowledge the progress made by the Department, working with partner bodies, in defining and implementing a strategic response to the challenge of Type 2 diabetes. At the same time, there is a continuing need to consolidate and better co-ordinate current activities in relation to tackling obesity and Type 2 diabetes. For instance, *Fit Futures* identified gaps in the information on obesity risk factors, particularly at the local level that would help planning. We would reiterate its view that there is a glaring need to build the evidence for effective intervention and to ensure that it informs the design and delivery of primary prevention programmes. This will require a surveillance system to provide strategic and timely support to the implementation and review of reforms under these policies and provide robust capacity to measure achievements against agreed physical activity and healthy eating targets.

4.11 The Health and Social Wellbeing Survey for 2005-06 for the first time provided self-reported information on obesity risk factors in children and young people. The Department told us that it had also funded the inclusion of a "booster" sample from Northern Ireland as part of the National Diet and Nutrition Survey which provides a cross-sectional picture of the dietary habits and nutritional status of the population of Great Britain. However, apart from these sources of information, there are currently no independent, ongoing objective measurements of physical activity and eating habits or the associated biomedical indicators of risk (for example, body mass index, high blood sugar and high blood cholesterol).

4.12 *Fit Futures* called for measures to ensure that an effective evidence base on obesity risk factors was developed. However after three years, progress on this recommendation has been slow. In our view, the Department has to be at the forefront of efforts to define and implement a regional surveillance strategy for obesity and its links with chronic disease, in particular Type 2 diabetes. It is important that the Department takes timely action to introduce a health monitoring survey to better understand the

19 *National Reform Agenda: Victoria's plan to address the growing impact of obesity and Type 2 diabetes,* Council of Australian Governments, April 2007.

eating habits, physical activity and related biomedical health indicators of the population of Northern Ireland.

4.13 From September 2007, the Department has provided funding to collect and record, through the School Nursing Service, BMI measurements of all Year 8 and Year 9 pupils. The Department told us that it also commissions surveys, typically every three to four years, covering issues such as dietary habits, physical activity and a range of associated lifestyle behaviours among children and adults. In addition, it has increased the Northern Ireland sample included within the United Kingdom Diet and Nutrition Survey.

4.14 We strongly support this work. It is important that the Department has an objective appreciation of obesity risk factors and the pattern of obesity which they underpin. It needs to ensure that its approach to surveillance is both comprehensive and timely to adequately inform it and other departmental partners about these risk factors.

# Appendices

# Appendix One: (paragraph 1.3)
## Adult overweight and obesity in the European Union

| Country | Year of data collection | Males | | | Females | | |
|---|---|---|---|---|---|---|---|
| | | % BMI 25-29.9 | % BMI ³ 30 | Combined BMI³ 25 | % BMI 25-29.9 | % BMI ³ 30 | Combined BMI³ 25 |
| Austria | 2005-06 | 42.3 | 23.3 | 65.6 | 32.4 | 20.8 | 53.2 |
| Belgium* | 2004 | 38.7 | 11.9 | 50.6 | 24.4 | 13.4 | 37.8 |
| Bulgaria* | 2001 | 38.8 | 11.3 | 50.1 | 28.8 | 13.5 | 42.3 |
| Cyprus | 2003 | 43.1 | 14.7 | 57.8 | 31.1 | 13.8 | 44.8 |
| Czech Republic | 2005 | 42.0 | 18.0 | 60.0 | 29.0 | 17.0 | 46.0 |
| Denmark* | 2001 | 40.1 | 11.8 | 51.9 | 26.9 | 12.5 | 39.4 |
| England | 2006 | 44.7 | 24.9 | 69.5 | 32.9 | 25.2 | 58.0 |
| Estonia* | 2004 | 32.0 | 13.7 | 45.7 | 28.4 | 14.4 | 42.8 |
| Finland* | 2005 | 44.8 | 14.9 | 59.7 | 26.7 | 13.5 | 40.2 |
| France | 2006 | 41.0 | 16.1 | 57.1 | 23.8 | 17.6 | 41.4 |
| Germany | 2003 | 45.5 | 20.5 | 66.0 | 29.5 | 21.1 | 50.6 |
| Greece* | 2003 | 41.2 | 26.0 | 67.1 | 29.9 | 18.2 | 48.1 |
| Hungary* | 2004 | 41.8 | 17.1 | 58.9 | 31.3 | 18.2 | 49.4 |
| Ireland | 1997-99 | 46.3 | 20.1 | 66.4 | 32.5 | 15.9 | 48.4 |
| Italy* | 2005 | 42.5 | 10.5 | 53.0 | 26.1 | 9.1 | 35.2 |
| Latvia* | 2006 | 32.3 | 12.3 | 44.6 | 27.5 | 18.1 | 45.6 |
| Lithuania* | 2006 | 35.7 | 20.6 | 56.3 | 29.7 | 19.2 | 48.9 |
| Luxembourg | | 45.6 | 15.3 | 60.9 | 30.7 | 13.9 | 44.6 |
| Malta* | 2003 | 46.5 | 22.9 | 69.4 | 34.3 | 16.9 | 51.2 |
| Netherlands | 1998-02 | 43.5 | 10.4 | 53.9 | 28.5 | 10.1 | 38.6 |
| Poland | 2001 | 41.0 | 15.7 | 56.7 | 28.7 | 19.9 | 48.6 |
| Portugal | 2003-05 | 45.2 | 15.0 | 60.2 | 34.4 | 13.4 | 47.8 |
| Romania* | 2000 | 38.1 | 7.7 | 45.8 | 28.6 | 9.5 | 38.1 |
| Scotland | 2003 | 43.0 | 22.4 | 65.4 | 33.8 | 26.0 | 59.7 |
| Slovakia* | 2002 | 51.5 | 17.8 | 69.3 | 27.9 | 19.4 | 47.2 |
| Slovenia* | 2001 | 50.0 | 16.5 | 66.5 | 30.9 | 13.8 | 44.7 |
| Spain | 2003 | 46.7 | 13.9 | 60.6 | 30.6 | 15.1 | 45.7 |
| Sweden | 2002 | 43.5 | 14.8 | 58.3 | 26.6 | 11.0 | 37.6 |

*Source: International Association for the Study of Obesity, London, July 2008*

* self-reported figures

**Note:** The surveys are not strictly comparable because of dif ferences in age range and methodology. With the limited data available, prevalences are not age-standardised. Self-reported surveys may under-estimate true prevalence.

# Appendix Two: (paragraph 1.3) Public Accounts Committee Recommendations on Obesity, 2007

1. **The 2004 Health Survey for England showed an overall rise in obesity amongst children aged 2-10 from 9.9 % in 1995 to 13.4% in 2004.** Despite the introduction of a specific PSA target in July 2004 aimed at tackling the growing problem of child obesity, the Departments have been slow to react and have still not published key sections of the Delivery Plan. The Departments need to increase the pace of their response and improve their leadership by, for example, appointing a senior, high profile champion, to lead and galvanise activity.

2. **The three Departments have set up a complex delivery chain for tackling child obesity involving 26 different bodies or groups of bodies.** Our predecessors' report on obesity identified confusion over roles and responsibilities both between different departments and others charged with tackling the problem.[20] This confusion still exists. The Departments need to clarify responsibilities throughout the delivery chain and introduce measures to judge the performance and contribution of the respective parties, perhaps similar to those under development for Local Area Agreements.

3. **Parents have not been engaged; the only initiative planned by the Departments that will directly target parents and children is a social marketing campaign which will not be launched until 2007.** The campaign should be started as soon as possible. It should present some simple but high profile messages and advice to parents, children and teachers, outlining the risks of obesity and show simple ways in which children can make a difference to their lifestyles: for example, the message that consuming one less chocolate biscuit per day can help lead a child out of obesity (the Departments' own example).

4. **Despite embarking on a national programme to measure children in all primary schools in England the Department of Health is still not clear about whether parents should be informed if their child is overweight or obese.** The Departments decided originally that to protect children from stigmatisation and bullying, parents should not be informed. Reflecting the Committee's concerns, however, the Department is now considering how and when parents could be informed. The Department should move quickly to disclose the information in ways that will help parents to address the dietary and exercise needs of their children.

5. **There is a delay of up to two years between the Health Survey for England and publication of results, so Departments do not currently know what progress is being made towards halting the rise in child obesity.** The Departments should use the annual data from weighing and measuring in schools as an interim measure of overall performance, determining where most and least progress is being made and using this data to identify factors which contribute to performance.

6. **The Department's strategy of working alongside the food industry to influence its approach to the marketing of foods and drinks that are high in fat, salt and sugar has not been successful in changing the way the majority of unhealthy foods are marketed.** The Departments should encourage the growth in the market for healthy food and drink for children. For example, they could

20 Committee of Public Accounts, Ninth Report of Session 2001-02, *Department of Health: Tackling Obesity in England,* HC 421; C&AG's Report, Tackling Obesity in England, HC (2000-01) 220

# Appendix Two: (paragraph 1.3) Public Accounts Committee Recommendations on Obesity, 2007

introduce an accreditation scheme with readily identifiable badging and publicity material which highlights those companies who are doing most to tackle this issue.

7. **Advertising for food high in fat, salt and sugar accounts for 80-90% of all food advertising on television.** In November 2006 the Office of Communications (Ofcom) announced new restrictions on the advertising of unhealthy foods. These include a ban on advertisements for unhealthy foods "in and around all programmes of particular appeal to children". Ofcom should make arrangements with the Departments concerned to monitor and assess the impact of the new restrictions and tighten the restrictions if those now planned are found to be ineffective.

8. **In 2003-2004, 72 new playing fields were created against 52 lost and during the same period 131 swimming pools were opened against the 27 that were closed.** Departments have made progress in encouraging children to lead more active lifestyles, but there is scope for better targeting at children's preferences and at localities and social groupings with fewer opportunities. The Departments for Education and Skills and for Culture, Media and Sport should encourage local authorities, schools and other providers to develop more public facilities such as lidos, and identify and prioritise those competitive and other sports and physical activities that children are most likely to take up.

# Appendix Three: (paragraph 1.6)

Finnish Diabetes Association

## TYPE 2 DIABETES RISK ASSESSMENT FORM

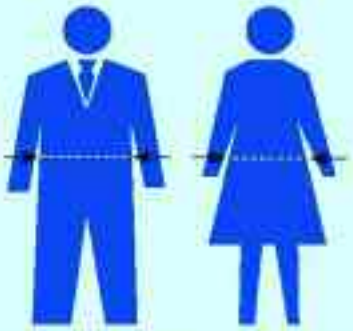
Circle the right alternative and add up your points.

**1. Age**
0 p. Under 45 years
2 p. 45–54 years
3 p. 55–64 years
4 p. Over 64 years

**2. Body-mass index**
(See reverse of form)
0 p. Lower than 25 kg/m²
1 p. 25–30 kg/m²
3 p. Higher than 30 kg/m²

**3. Waist circumference measured below the ribs (usually at the level of the navel)**

| | MEN | WOMEN |
|---|---|---|
| 0 p. | Less than 94 cm | Less than 80 cm |
| 3 p. | 94–102 cm | 80–86 cm |
| 4 p. | More than 102 cm | More than 88 cm |



**4. Do you usually have daily at least 30 minutes of physical activity at work and/or during leisure time (including normal daily activity)?**
0 p. Yes
2 p. No

**5. How often do you eat vegetables, fruit or berries?**
0 p. Every day
1 p. Not every day

**6. Have you ever taken antihypertensive medication regularly?**
0 p. No
2 p. Yes

**7. Have you ever been found to have high blood glucose (eg in a health examination, during an illness, during pregnancy)?**
0 p. No
5 p. Yes

**8. Have any of the members of your immediate family or other relatives been diagnosed with diabetes (type 1 or type 2)?**
0 p. No
3 p. Yes: grandparent, aunt, uncle or first cousin (but no own parent, brother, sister or child)
5 p. Yes: parent, brother, sister or own child

**Total Risk Score**

**The risk of developing type 2 diabetes within 10 years is**

| | |
|---|---|
| Lower than 7 | Low: estimated 1 in 100 will develop disease |
| 7–11 | Slightly elevated: estimated 1 in 25 will develop disease |
| 12–14 | Moderate: estimated 1 in 6 will develop disease |
| 15–20 | High: estimated 1 in 3 will develop disease |
| Higher than 20 | Very high: estimated 1 in 2 will develop disease |

Please turn over

Test designed by Professor Jaakko Tuomilehto, Department of Public Health, University of Helsinki, and Jaana Lindström, MFS, National Public Health Institute.

# Appendix Four: (paragraph 2.2) Advantages and Disadvantages of PHO-Brent-ScHARR Diabetes Population Prevalence Model (PBS)

*The PBS model offers several advantages over the existing methods used to forecast population prevalence of diabetes:*

- It provides a systematic approach with clear methodology based upon the use of population studies and resident population counts. The model has been rigorously tested in England.
- As well as producing national forecasts, the PBS Model generates forecasts at sub-national levels.
- The model allows us to include different scenarios of BMI distribution over the period 2005 – 2015.
- It provides a single methodology that can be applied in both the Republic of Ireland and Northern Ireland.
- It provides estimates of population prevalence without making assumptions about the percentage of cases that are undiagnosed.

*However like any model there are also limitations:*

- In the Republic of Ireland, it was necessary to assume the whole population belonged to the "White" ethnic group. Although a question on ethnicity was included in the April 2006 census, detailed information is not yet available.
- In Northern Ireland, it was necessary to assume that the proportion of people from ethnic groups has remained constant since 2001 as population projections are not disaggregated by ethnicity.
- There is insufficient information on BMI available on the island of Ireland to estimate trends therefore trends in BMI distribution are based on data from the National Health Survey for England.
- The reference prevalence rates for Type 2 diabetes are based on the WHO 1985 diagnostic cut-off points.

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