

POSITION STATEMENT

Title	Date
Early identification of people with, and at high risk of Type 2 diabetes and interventions for those at high risk.	November 2015
Key points	
<p>Diabetes UK</p> <ul style="list-style-type: none">• Supports the recommendations of the UK Expert Committee that those with an HbA_{1c} of 42-47mmol/mol (6.0-6.4%) should be considered high risk, even if asymptomatic.• Currently uses the term “at high risk of Type 2 diabetes” for those with Non-diabetic Hyperglycaemia. Although the term “prediabetes” has become more common in the lay press, in general Diabetes UK won’t use that term because of the lack of clarity over what is meant by prediabetes.• Supports NICE public health guidance 38 and the NHS health checks programme in England and calls for them to be fully implemented along with further calls to action, especially in the other nations of the UK who are looking at targeted risk assessment.• Would also support international action to agree and harmonise the HbA_{1c} cut point for identifying individuals at high risk of Type 2 diabetes.• Supports the NHS Diabetes Prevention Programme in England and would encourage similar developments in the other three nations. <p>There is a need to identify people with and at high risk of Type 2 diabetes and offer interventions for those at high risk because:</p> <ul style="list-style-type: none">• It is estimated that 549,043 people have undiagnosed Type 2 diabetes in the UK• Up to 50% of people may already have complications when they are diagnosed with Type 2 diabetes• Approximately 6 million people in the UK are at high risk of developing Type 2 diabetes, with as many as 11.9 million at increased risk• There is clear evidence that interventions for people at high risk can delay or prevent Type 2 diabetes.	
Introduction	
<p>There are approximately 3.5 million people who have been diagnosed with diabetes in the UK and the prevalence is rising. It is estimated that 549,043 people in the UK have Type 2 diabetes but do not know itⁱ. This is because the signs and symptoms may not be obvious and it can take some years before the condition is diagnosedⁱⁱ.</p> <p>Diabetes is a serious condition and, when not well managed, people are at increased risk of complications including heart disease, stroke, blindness, kidney disease and amputations. The life expectancy of someone with Type 2 diabetes is about 6 years less than someone without</p>	

diabetesⁱⁱⁱ. Up to 50% of people with Type 2 diabetes may already show signs of complications by the time they are diagnosed^{iv}. This is particularly true of hypertension, hyperlipidaemia and neuropathy.

Preventing or delaying diabetes complications can not only improve a person's quality of life but it can also help save the NHS money. Taking steps to identify those with undiagnosed Type 2 diabetes can help people reduce their risk of complications^{iv}. Before people develop Type 2 diabetes, they almost always have impaired glucose regulation (non-diabetic hyperglycaemia) and would be considered high risk. The evidence that Type 2 diabetes can be prevented or delayed in people who have non-diabetic hyperglycaemia is very strong^{v,vi,vii}.

There is a lack of awareness of the signs, symptoms and risk factors of Type 2 diabetes. A survey of Diabetes UK members diagnosed with Type 2 diabetes in a 12 month period (2009), found only 18% were diagnosed as a result of a routine test offered by the GP or practice nurse and 37% were diagnosed as a result of having a test for another condition or problem. 56% were "highly unaware" or "unaware" of the symptoms. Only 16% were diagnosed because they asked their doctor for a test or went to the GP because they had symptoms of diabetes^{viii}.

Current situation

Numbers involved:

Older studies have found that 15% of the population have impaired glucose regulation and the evidence for prevention in this group is unequivocal^{ix,x}.

Diabetes UK supports the recommendations of the UK Expert Committee, supported by the NHS Diabetes Prevention Programme, that those with an HbA_{1c} of 42-47mmol/mol (6.0-6.4%) should be considered high risk, even if asymptomatic^{xi}.

Recently published information, based on data from the Health Survey for England, estimates that 10.7% of the English population (approximately 5 million people) falls within this range of HbA_{1c}^{xii}. Diabetes UK estimates that nearly 6 million people across the UK fall in this category^{xiii}.

The at-risk population would still be greater than this, even if their level of risk was not as high. Without further research it is impossible to establish exactly how many people in the UK are at increased risk of developing Type 2 diabetes. However, the main modifiable risk factors of Type 2 diabetes are increased waist circumference and being overweight/obese.

According to the HSCIC^{xiv}, using data from the Health Survey in England, 22% of men and 24% of women in England have a very high risk of developing long-term health problems (based on NICE guidelines on prevention, identification, assessment and management of overweight and obesity) because they have both an increased BMI and an increased waist circumference. Using these two

risk factors alone, based on the adult population, 5.54M men and 6.36M women would be at risk of Type 2 diabetes – 11.9M people in the UK^{xv}.

Terminology:

Accepted terminology to refer to people most likely to be at high risk of Type 2 diabetes is either those with “Impaired Glucose Regulation (IGR)” or “non-diabetic hyperglycaemia”. In the past, IGR has been commonly used. There are also two linked conditions (impaired glucose tolerance [IGT] and impaired fasting glucose [IFG]) which can be detected by specific blood glucose tests (fasting and Oral Glucose Tolerance). In terms of this position, all people in these categories are seen as at high risk of developing Type 2 diabetes in the future. Going forward, Diabetes UK will use **non-diabetic hyperglycaemia** for use with a professional and medical audience, in line with NHS England and Public Health England.

For lay people, two terms have been used – ‘borderline diabetes’ and ‘prediabetes’. Both medicalise a condition which is not currently recognised by World Health Organisation (WHO). Both terminologies can falsely suggest that a diagnosis of Type 2 diabetes is inevitable, which it is not and, rather than inspiring individuals to take action to reduce their risk, may in fact make them more resigned to the condition. Recent research^{xvi, xvii} has found that the term “**high risk of Type 2 diabetes**” is most clearly understood by lay people.

In light of this, Diabetes UK will generally refer to high risk of Type 2 diabetes. We will not generally use the term prediabetes as it is not clearly understood by lay audiences, and may cause confusion with professional audiences because of the different diagnostic levels suggested by the American Diabetes Association and others.

What are the current methods of early identification?

In order to identify people with Type 2 diabetes and those at high risk, NICE guidance^{xviii} recommends encouraging the following to have a risk assessment using a validated risk assessment tool, such as the Diabetes UK Risk Score^{xix};

- All non-pregnant adults aged 40 and above
- People aged 25-39 of South Asian and Chinese, African-Caribbean, black African and other high-risk black and minority ethnic groups
- People with conditions that increase the risk of Type 2 diabetes

Then, for those with a high risk score, to conduct a blood test (HbA_{1c} or fasting plasma glucose).

Diabetes UK believes that HbA_{1c} should be the test of choice, unless the individual is likely to give a low HbA_{1c} reading because of factors laid out in WHO diagnostic guidelines, such as genetic, haematologic and illness-related factors that influence HbA_{1c} and its measurement^{xx}.

NICE also makes recommendations about encouraging health professionals and others to communicate the risk of Type 2 diabetes and the benefits of prevention. The guidance stresses

that everyone being assessed should be given advice about their risk and about how to reduce their risk.

The NICE Guidance makes recommendations about how often someone should be reassessed depending on level of risk. Those at high risk should be reassessed at least once a year.

In England, for those between 40 – 74 years of age this guidance can be implemented through the NHS Health Check programme which is already in place but, despite widespread political support for the Health Checks Programme, implementation so far has been patchy and, in some places, poor. Every year, 20% of the eligible population should be offered a check so that the entire eligible population receives a Health Check over five years. As of the first quarter of 2015, there has been an average uptake (over the cumulative period 2013-2018) of 48.4%, which falls short of the target set by Public Health England of 75%. In total, only 20.6% of the total eligible population have received a Health Check to date^{xxi}.

Diabetes UK have also called for NHS Wales to deliver its commitment to a sustained diabetes risk assessment campaign in all pharmacies across Wales to identify people at risk of Type 2 diabetes. The Government has also integrated the Diabetes UK risk score into its 'Add to Your Life' initiative which is an online and community delivered health check for all over 50s in Wales.

In Scotland, Scottish Government policy has recognised prevention of Type 2 diabetes as a priority in the Diabetes Improvement Plan. The Plan includes a commitment to deliver a framework action, and Diabetes Scotland calls for this to be implemented as a matter of urgency.

Diabetes UK Northern Ireland are engaged in various activities across different communities to create awareness of the risk of developing Type 2 diabetes, and highlighting the role of healthcare professionals in not just treating illness but supporting people to stay well and live more healthily.

The Diabetes UK risk score^{xv}

The Diabetes UK risk score, produced in collaboration with Leicester University, can be used by individuals to identify their risk of developing Type 2 diabetes and encourages those at moderate to high risk to go to their GP to get tested for diabetes. The risk score tool is recommended because use of fasting plasma glucose (or random plasma glucose) alone is not as effective at identifying people with impaired glucose regulation^{xxii}. This type of targeted risk stratification to high risk groups has been shown to be more efficient, and results in higher positive diagnostic yield than testing the whole population^{xxiii,xxiv,xxv,xxvi}.

Diabetes UK encourages thousands of people each year to find out their risk through the Know Your Risk campaign, both online and through our national roadshow and volunteer network. Healthcare professionals also can request it separately to use in their practice.

Interventions for those at high risk of Type 2 diabetes

In England, Public Health England, NHS England and Diabetes UK are leading the implementation and roll out of the NHS Diabetes Prevention Programme (NHS DPP).

The NHS DPP aims to identify those at risk of Type 2 diabetes early and refer them into evidence-based lifestyle interventions to reduce their risk. It will be available nationally on roll-out to all adults at high risk of Type 2 diabetes. A PHE-commissioned evidence review to assess the effectiveness of 'real-world' DPPs found that, when compared with usual care:

- On average, 26% lower incidence of diabetes
- Average 1.57kg weight loss

Recommendations

Diabetes UK supports the NICE guidance: *Preventing Type 2 Diabetes: Risk Identification and Interventions for Individuals at High Risk*, and calls for implementation in full at both national and local level through NHS and local authority commissioning.

There needs to be a systematic approach to identifying people with Type 2 diabetes early which identifies and targets high risk groups no matter where someone lives within the UK.

An NHS Health Check or equivalent should be equally accessible to everyone who is eligible. There should be targeted action to reduce geographical variation and effective action to ensure those in high risk groups are risk assessed for Type 2 diabetes.

The Welsh Government have agreed to explore how to deliver continual assessment/screening in pharmacies in the future. Diabetes UK Cymru will monitor how effectively this is delivered.

Diabetes UK will continue to press the importance of targeted case finding and risk stratification in primary care and support earlier intervention and secondary prevention of complications for inclusion and action in the new Diabetes Plan for Northern Ireland.

There should be effective signposting to organisations providing information and advice to support people to adopt healthier lifestyles and reduce their risk of Type 2 diabetes. People should be encouraged to use the free Diabetes UK online Know Your Risk tool. Healthcare professionals can request the risk score to use within their practice, clinics, health events or other community settings.

GPs should be incentivised to keep a register of those at high risk of developing diabetes and delivery of management of people at high risk by inclusion of this in the Quality Outcomes Framework (QOF).

Diabetes UK supports the work of Public Health England on improving uptake of the NHS Health Check across England. Local Authorities and Health and Wellbeing Boards should ensure that the uptake of NHS Health Checks locally is improving towards the target of 75% coverage of the eligible population and that people at high risk of Type 2 diabetes are being followed up appropriately.

Diabetes UK is also working in partnership with Public Health England and NHS England to develop and roll out the NHS DPP.

The public health outcomes framework should include indicators on the:

- “prevalence of non-diabetic hyperglycaemia” and
- “percentage of eligible people completing the NHS DPP”

Diabetes UK welcomes the ring fence for local authority public health functions in England, which helps to ensure that the funding for NHS Health Checks is available. The Department of Health should maintain and guarantee this going forward in order for the gains of the NHS Health Check programme to be sustained.

Further research is needed in to the benefits of early identification on long term outcomes of Type 2 diabetes.

A WHO working group should be convened to identify and harmonise the different cut off points for high risk of Type 2 diabetes, based on the latest evidence.

Conclusion

There is clear guidance from NICE on identifying people at risk of Type 2 diabetes and the preventative interventions to be implemented. There is also a clear steer from the Government about the role of NHS Health Checks in identifying people with, and at high risk of, Type 2 diabetes in England with follow up lifestyle interventions for those at risk. Diabetes UK calls for full implementation of both the NICE guidance and the NHS Health Checks programme and for similar guidance and programmes to be delivered in the other nations.

Last reviewed

November 2015

References:

ⁱ This figure was worked out using the diagnosed figure from the 2014/5 Quality and Outcomes Framework and the AHPO diabetes prevalence model. A figure for Northern Ireland was not predicted by the AHPO model, so undiagnosed prevalence for Northern Ireland was extrapolated on the % undiagnosed figure for Scotland.

Country	QOF diagnosed 2014/15	APHO Estimate Total 2015	Undiagnosed Estimate 2015
England	2,913,538	3,348,320	434,782
NI	84,836	98,089	13,253
Scotland	271,312	313,695	42,383
Wales	183,348	241,973	58,625
Total	3,453,034	4,002,077	549,043

ⁱⁱ Harris MI, Klein R, Welborn TA et al (1992). Onset of NIDDM occurs at least 4-7 years before clinical diagnosis. *Diabetes Care* 15 (7); 815–819

ⁱⁱⁱ Seshasai SR on behalf of the Emerging Risk Factors Collaboration (2011) Diabetes mellitus, fasting glucose, and risk of cause-specific death. *N Engl J Med.* 3;364(9):829-41.

^{iv} Heydari, I. et al. Chronic complications of diabetes mellitus in newly diagnosed patients. *International Journal of Diabetes Mellitus* (2010) 2 (1) 61-63

^v The DECODE Study Group: Age- and sex-specific prevalences of diabetes and impaired glucose regulation in 13 European cohorts. *Diabetes Care* (2003) 26:61-69

^{vi} Gillies CL et al, Pharmacological and lifestyle interventions to prevent or delay type 2 diabetes in people with impaired glucose tolerance: systematic review and meta-analysis. *BMJ* 2007; 334-299

^{vii} A systematic review and meta-analysis assessing the effectiveness of pragmatic lifestyle interventions for the prevention of type 2 diabetes mellitus in routine practice Nuzhat B Ashra, Rebecca Spong, Patrice Carter, Melanie J Davies et al <https://www.gov.uk/government/publications/diabetes-prevention-programmes-evidence-review>

^{viii} Diabetes UK: State of Diabetes Care report 2009

^{ix} The DECODE Study Group: Age- and sex-specific prevalences of diabetes and impaired glucose regulation in 13 European cohorts. *Diabetes Care* (2003) 26:61-69

^x Gillies CL et al, Pharmacological and lifestyle interventions to prevent or delay type 2 diabetes in people with impaired glucose tolerance: systematic review and meta-analysis. *BMJ* 2007; 334-299

^{xi} John WG, Hillson R, Alberti SG. Use of haemoglobin A1c (HbA_{1c}) in the diagnosis of diabetes mellitus. The implementation of World Health Organisation (WHO) guidance 2011. *Practical Diabetes.* (2012) ;29:12–12a

^{xii} Public Health England (2015) NHS Diabetes Prevention Programme (NHS DPP) Non-diabetic hyperglycaemia
Produced by: National Cardiovascular Intelligence Network (NCVIN)

^{xiii} Based on the latest 2014 dataset for the UK population (Office for National Statistics. Population Estimates for UK, England and Wales, Scotland and Northern Ireland - Mid-2014) and using the 10.7% found in the NCVIN analysis, Diabetes UK estimate that in the UK there are 5,978,535 people aged 16 and over with non-diabetic hyperglycaemia.

^{xiv} HSCIC. Statistics on Obesity, Physical Activity and Diet: England 2014 (2014)

^{xv} Based on the latest 2014 dataset for the UK population (Office for National Statistics. Population Estimates for UK, England and Wales, Scotland and Northern Ireland - Mid-2014): 25,183,266 adult men and 26,504,311 adult women are recorded. 22% of the men is 5,540,319 and 24% of the women is 6,361,035 – which is a total of 11,901,354

^{xvi} Developing the Merseyside prediabetes pathway: Summary of insight commissioned for the Merseyside Diabetes Network.

<http://www.northmerseydiabetes.nhs.uk/library/documents/NMDSsupportingpresentationpatientleafletandgoalplanOctober2013.pdf>

^{xvii} Insight conducted by Diabetes UK for the development of the NHS Diabetes Prevention Programme

^{xviii} NICE Public Health Guidance 38: Preventing type 2 diabetes: risk identification and interventions for individuals at high risk: July 2012

^{xix} <http://riskscore.diabetes.org.uk/2013>

^{xx} http://www.diabetes.org.uk/About_us/What-we-say/Diagnosis-prevention/New_diagnostic_criteria_for_diabetes/

^{xxi} http://www.healthcheck.nhs.uk/interactive_map/

^{xxii} Colagiuri S, Hussain Z, Zimmet P, Cameron A, Shaw J. Screening for Type 2 Diabetes and Impaired Glucose Metabolism: the Australian experience. *Diabetes care* 2004;27(2):367-371

^{xxiii} Rathmann W, Haastert B, Icks A, Lawel H, Meisinger C, Holle R, et al. High prevalence of undiagnosed diabetes mellitus in Southern Germany: Target populations for efficient screening. *The KORA survey 2000. Diabetologia* 2003;46(2):182-189.

^{xxiv} Goyder E, Carlisle J, Wild S, Fischbacher C, Lawton J, Peters J, et al. National evaluation of DHDS Diabetes Screening Pilot Programme. Final Report. University of Sheffield: School of Health and Related Research, 2008.

^{xxv} The diabetes prevention programme. Strategies to Identify Adults at High Risk for Type 2 Diabetes. *Diabetes care* 2005;28(1):138-144.

^{xxvi} Hoerger TJ, Harris R, Hicks KA, Donahue K, Sorensen S, Engelgau M. Screening for Type 2 Diabetes Mellitus: A Cost-Effectiveness Analysis. *Annals of Internal Medicine* 2004;140(9):689-699.