Prevention of diabetes in the UK: Challenges to implementation of the NICE guidance

Kamlesh Khunti

Tom Yates

Melanie J Davies

Type 2 diabetes is a common chronic condition with an increasing prevalence and is associated with high morbidity, mortality and healthcare costs. Current estimates suggest that there are approximately 3.1 million adults in England with diabetes, of whom approximately one-quarter are undiagnosed (Holman et al, 2011). However, the burden of those at risk, through already displaying impaired glucose regulation, is two to three times greater. Intensive lifestyle interventions have been shown to prevent type 2 diabetes in those at high risk (Kahn et al, 2010). Furthermore, one comprehensive economic decision analytic model showed that screening for type 2 diabetes and impaired glucose tolerance with appropriate interventions for those diagnosed is likely to be cost effective (Gillies et al, 2008).

Until recently in the UK, there have been no diabetes prevention programmes that have incorporated both the systematic identification and the management of high-risk individuals. However, two recent initiatives should enable a step change in the risk identification and prevention of diabetes in primary care. Firstly, the NHS Health Checks Programme for adults aged 40–74 years was introduced in England in 2009 (Department of Health [DH], 2008b). The objective of the programme is to assess risk of developing vascular or metabolic disease (heart attack, angina, stroke, diabetes, and kidney disease) and manage the risk factors to prevent progression and improve outcomes. A key element of this programme is identifying people with undiagnosed type 2 diabetes and those at risk of diabetes. Secondly, NICE has just published new guidance titled "Preventing type 2 diabetes – risk identification and interventions for individuals at high risk" as part of its programme of Public Health Guidance (Chatterton et al, 2012; NICE, 2012). This will guide the prevention of type 2 diabetes within the NHS Health Checks Programme (Chatterton et al, 2012; NICE, 2012).

Until recently, the oral glucose tolerance test was recommended to identify people at risk of diabetes. However, subsequent to the launch of the NHS Health Checks Programme, the World Health Organization (2011) recommended using HbA_{1c} as an additional method for diagnosing type 2 diabetes. The DH's Advisory Committee on Diabetes has also recently recommended using HbA_{1c} for diagnosing people with diabetes and those at risk of diabetes (John et al, 2011). Use of HbA_{1c} as part of the NHS Health Checks Programme provides an opportunity for combined diagnosis for those at high cardiovascular and diabetes risk (Preiss et al, 2011).

Universal screening for diabetes and diabetes risk through blood tests is unlikely to be a feasible strategy. Pre-screening a population using a non-invasive risk stratification tools followed by a blood test has been shown to be the most cost-effective strategy for screening for diabetes and those at risk (Khunti et al, 2012). The NICE guidance incorporates this two-stepped approach and makes practical recommendations on risk identification using simple self-assessment risk scores or computer-based risk scores followed by a fasting glucose or a random HbA_{1c} assessment. The guidance also makes pragmatic recommendations to help people make long-term lifestyle changes to reduce risk and delay onset of type 2 diabetes (NICE, 2012). The comprehensive modelling undertaken by NICE confirmed that this would be a cost-effective strategy.

The implementation of these two initiatives will clearly have implications for primary care, in which staff are already feeling overstretched. In recent years, primary care has increasingly taken on more and more responsibility for diabetes prevention and treatment, because of the general move towards favouring care in the community. Implementation of the NHS Health Checks Programme has put further pressure on primary care, where surgeries are struggling to manage their existing workload. Many surgeries are already experiencing an increase in the number of enquiries. The DH's cost-effectiveness modelling assumes a 75% uptake of the NHS Health Checks Programme (DH, 2008a). A recent pilot in one region reported response rates of 29%, with even fewer attending for follow-up (Diabetes UK, 2012). The recent Diabetes UK report "The NHS Health Checks Programme: Let's Get it Right" highlighted large variations in implementation of the programme, with the potential for widening health inequalities (Diabetes UK, 2012). Furthermore, response rates for screening programmes are low in areas of socioeconomic deprivation and multi-ethnic communities (Goyder et al, 2008), which would widen disparities in these groups. Reasons for low response in these groups are complex and include variations in health beliefs and help-seeking behaviour.

Many issues relating to delivery of the programme and its impact on existing primary care services need further clarification. For successful implementation, the commissioning group and practices will need to negotiate how the screening will be provided, and how much control an individual practice will have on its delivery.

In many practices there is still debate on who will carry out the assessments and subsequent lifestyle interventions and management. The risk assessment process would seem ideally suited to healthcare assistants rather than practice nurses. There are a number of issues relating to appropriate training of staff including skills and confidence in assessing risk, communicating risk to the patient, offering lifestyle advice, managing new diagnoses and dealing with associated questions or concerns. Education of primary care staff will therefore be a key part of the agenda for the commissioning groups. Further work is also needed on how the identification of high-risk individuals will interface with commissioning and running lifestyle modification programmes.

The programme has the potential to improve the detection of people with diabetes and those at high risk of vascular disease. This will require a significant increase in resources in primary care; however, earlier detection should improve the management of vascular disease, thereby reducing complication rates, and resulting in more favourable long-term outcomes. Publication of the NICE guidance and implementation of the NHS Health Checks Programme present major opportunities to upscale cost-effective evidence-based risk identification and prevention programmes in the real-world setting. Implementation plans by local authorities working in collaboration with the health and wellbeing boards and the commissioning groups will be required if we are to see the potential impact of the programme. ■

Acknowledgements

KK, TY and MJD are advisers to the national screening committee that informed some elements of the NHS Health Checks Programme, and are currently conducting studies as part of NIHR CLAHRC on early detection of diabetes and cardiovascular disease. KK (Chair), TY and MJD were committee members for NICE Guidance PH38: "Preventing type 2 diabetes – risk identification and interventions for individuals at high risk."

Chatterton H et al (2012) Risk identification and interventions to prevent type 2 diabetes in adults at high risk: summary of NICE guidance. *BMJ* **345**: e4624

Department of Health (2008a) *Economic Modelling for Vascular Checks*. DH, London

Department of Health (2008b) *Putting prevention first – vascular checks: risk assessment and management*. DH, London. Available at: http://bit.ly/O63Xji (accessed 29.11.12)

Diabetes UK (2012) *Prevention and Early Diagnosis of Type 2 Diabetes*. Diabetes UK, London

Gillies CL et al (2008) Different strategies for screening and prevention of type 2 diabetes in adults: cost effectiveness analysis. *BMJ* **336**: 1180–5

Goyder E et al (2008) Evaluating the impact of a national pilot screening programme for type 2 diabetes in deprived areas of England. *Fam Pract* **25**: 370–5

Holman N et al (2011) The Association of Public Health Observatories (APHO) Diabetes Prevalence Model: estimates of total diabetes prevalence for England, 2010–2030. *Diabet Med* **28**: 575–82

Author details

Kamlesh Khunti is Professor of Primary Care Diabetes & Vascular Medicine, Tom Yates is a Senior Researcher and Melanie Davies is Professor of Diabetes Medicine, University of Leicester. All three authors are also affiliated with the NIHR Leicester–Loughborough Diet, Lifestyle and Physical Activity, Biomedical Research Unit.

For an article examining NICE public health guidance 38 in further detail, please see *Diabetes & Primary Care* 14: 266–74

John WG (2012) Use of HbA_{1c} in the diagnosis of diabetes mellitus in the UK. The implementation of World Health Organization guidance 2011. *Diabet Med* **29**: 1350–7

Kahn R et al (2010) Age at initiation and frequency of screening to detect type 2 diabetes: a cost-effectiveness analysis. *Lancet* **375**: 1365–74

Khunti KG et al (2012) A comparison of cost per case detected of screening strategies for Type 2 diabetes and impaired glucose regulation: Modelling study. *Diabetes Res Clin Pract* **97**: 505–13

NICE (2012) *Preventing type 2 diabetes – risk identification and interventions for individuals at high risk*. NICE, London

Preiss D et al (2011) Combined cardiovascular and diabetes risk assessment in primary care. *Diabet Med* **28**: 19–22

World Health Organization (2011) *Use of Glycated Haemoglobin (HbA_{1c}) in the Diagnosis of Diabetes Mellitus*. WHO, Geneva, Switzerland