Prevention of type 2 diabetes: Is it possible in the real world?

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Conflict of interest

Kamlesh Khunti Chairs the *NICE Preventing Type 2 Diabetes – Risk Identification and Interventions for Individuals at High Risk* Public Health Guidance Group.

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The world is facing a growing epidemic of type 2 diabetes (T2D) and obesity. Prevalence rates for both conditions are soaring, and the clinical interrelationship between the two ("diabesity") highlights the need for healthcare services to rethink their approach to the prevention of what is fast becoming one of the biggest threats to human health and wellbeing.

Scale of the problem

In the UK alone, diabetes currently affects over 2.5 million people (90% of whom have T2D) and its prevalence is predicted to rise to over 4 million by 2025 (Diabetes UK, 2010). This soaring prevalence is largely explained by the increasing prevalence of obesity – an established risk factor for T2D – which is now increasingly being seen at younger ages.

T2D leads to considerable morbidity and mortality, and the costs of managing and treating the condition are estimated to be around 10% of NHS expenditure (Department of Health, 2006).

Barriers to the prevention of T2D

T2D is a chronic condition characterised by inadequate glycaemic control. It is preceded by a pre-diabetic state of impaired glucose regulation (IGR), which has recently been termed "high risk of diabetes". A number of large randomised controlled trials, however, have shown that prevention of T2D is possible, with a 50% reduction in progression from "high risk" to T2D (Gillies et al, 2007).

There are three major barriers to prevention of T2D in the real-world setting. First, prevention requires a pragmatic method of identifying people who are at high risk of developing T2D. Until recently, an oral glucose tolerance test (OGTT) has been recommended to identify those with impaired glucose tolerance (IGT) or impaired fasting glucose (Alberti and Zimmet, 1998). All the prevention efficacy trials to date have been conducted in people identified as having IGT based on an OGTT (Gillies et al, 2007). OGTTs, however, are costly and time-consuming and are therefore impractical for use in routine clinical practice.

Second, all the prevention programmes used resource-intensive behaviour change strategies, which would be difficult to implement in the real-world setting in view of the resources and infrastructure required. Modelling studies have suggested that screening and intervention for people with IGR are likely to be cost-effective using pragmatic interventions (Gillies et al, 2008). Some countries, such as Finland, USA and Australia, have been at the forefront of rolling out pragmatic programmes for risk identification and prevention of diabetes nationally. Indeed, a recent meta-analysis of the translational international studies based on the US Diabetes Prevention Program has shown that prevention is possible in the real-world with a mean weight reduction of around 4% (Ali et al, 2012).

Third, lack of motivation for lifestyle change among people who are at high risk is a key factor in the success of any prevention strategy. A recent study showed that only 36% of men and 52% of women at high risk of diabetes perceived the need for lifestyle counselling (Salmela et al, 2012).

Prevention in practice: The challenge

The challenge facing the NHS, therefore, is scaling up and industrialising efficacy trials in a pragmatic manner. The recent NICE (2012) guidance on prevention of T2D is therefore welcomed. Although currently out for consultation, the guidance makes practical recommendations on risk identification using simple self-assessment risk scores (Gray et al, 2010) or using automated computer-based risk scores (Gray et al, 2012) followed by a fasting glucose or a random HbA_{1c} assessment. In addition, it makes pragmatic recommendations to help people make long-term lifestyle changes that will lead to reduced risk or delayed onset of T2D. The guidance also makes specific recommendations for certain groups at high risk of developing T2D, such as south Asian people and those with learning disabilities.

The NICE guidance is welcome; however, implementation will depend on what priority the financially stretched primary care trusts (and consortia) place on prevention of diabetes. ■