

First risk prediction algorithm to estimate 10-year risk of type 2 diabetes

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The prevalence of type 2 diabetes and the burden of diseases caused by it have increased very rapidly world wide. Strong evidence from randomised controlled trials shows that behavioural or pharmacological interventions can prevent type 2 diabetes in up to two thirds of high risk cases. The prevention and early detection of diabetes become an international public health priority. Early detection is important, as up to 50% of patients with newly diagnosed type 2 diabetes have one or more complications at the time of diagnosis.

The investigators developed a new diabetes risk algorithm (the QDScore) for estimating 10 year risk of acquiring diagnosed type 2 diabetes over a 10 year time period in an ethnically and socioeconomically diverse population. A clinical algorithm using "routinely collected data" rather than laboratory measurements can help determine this risk, researchers reported in *BMJ*.

The authors used routinely electronic collected data from 355 general practices in England and Wales (2.5 million patients) to develop the score, and identified those variables

that independently predict the occurrence of diabetes. They designed two cohorts, a derivation cohort (where they performed a prospective study) and a validation cohort. A Cox proportional hazards model was used to estimate the coefficients and hazard ratios associated with each potential risk factor for the first ever recorded diagnosis of diabetes and to derive a risk equation in men and women. Identified risk factors were then incorporated into a clinical algorithm that was tested in a validation cohort of 1.2 million adults.

The QDScore (the final risk prediction algorithm) included age, BMI, family history of diabetes, smoking status, treated hypertension, corticosteroid use, presence of cardiovascular disease, socioeconomic status, and self-reported ethnicity. This tool does not require any laboratory measurement so it can be used in many settings, including by public who have access to a computer.

In conclusion, the authors stated that their tool "could be used to identify patients at high risk of diabetes who might benefit from interventions to reduce their risk". □

Comment on the paper:

J Hippisley-Cox, C Coupland, J Robson, et al – Predicting risk of type 2 diabetes in England and Wales: prospective derivation and validation of QDScore. *BMJ* 2009; 338:b880, doi: 10.1136/bmj.b880 (Published 17 March 2009)