

## **Updated UKPDS Risk Engine that Estimates Primary and Secondary Cardiovascular Disease Risk in People With Recently-Diagnosed or Established Type 2 Diabetes**

RUTH L. COLEMAN, RICHARD J. STEVENS, RURY R. HOLMAN, *Oxford, United Kingdom*

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The UKPDS Risk Engine is a diabetes-specific risk calculator that uses the 20-year UK prospective diabetes study (UKPDS) trial data to estimate future coronary heart disease (CHD) and stroke risk. Recognized limitations are that it does not estimate total cardiovascular disease (CVD) risk, can only be used in individuals with newly-diagnosed type 2 diabetes and does not take account of albuminuria.

We have produced a new UKPDS Risk Engine that incorporates the 10-year UKPDS post-trial monitoring data. It utilizes over 40,000 patient-years of data with 1,115 cardiovascular disease (CVD) events, defined as: CVD death, non-fatal myocardial infarction (MI), non-fatal stroke or ischaemic heart disease.

Patients were entered into the model at random intervals after diagnosis of diabetes so that risks could be estimated in people with varying degrees of diabetes duration, and with a history of previous MI or stroke where these had occurred prior to model entry. New statistically-independent risk factors, in addition to those in the old model (age, gender, ethnicity, smoking status, HbA1c, systolic blood pressure, total-to-HDL cholesterol ratio and atrial fibrillation), were: previous MI or stroke, macroalbuminuria, microalbuminuria, duration of diagnosed diabetes and body mass index, with hazard ratios of 3.06, 1.56, 1.32, 1.05 and 1.03 respectively in the CVD equations.

CHD risk estimates generated by the new model were more precise than the old model, providing 22% narrower 95% Confidence Intervals. The updated UKPDS Risk Engine provides a more precise and more generalizable diabetes-specific risk calculator that estimates the risk of CVD and CVD death, in addition to CHD and stroke. It can estimate risks for primary or secondary CV events, and in people who have established or newly-diagnosed diabetes.