Type 2 diabetes and pre-diabetes: Issues of diagnosis and definition

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An introduction to the origins and evolution of the classification of diabetes and pre-diabetes is relevant to the discussions of the NICE PDG concerning prevention of pre-diabetes.

The term "pre-diabetes" is used to define the combination of categories of impaired glucose tolerance (a 2 hour glucose level of 7.8 – <11.1 mmol/l) and/or impaired fasting glucose (glucose 6.1 - <7.0 mmol/l). These categories were originally introduced by a WHO Expert Committee on the Diagnosis and Classification of Diabetes to replace other terms such as "borderline" or "chemical" diabetes which were thought to be potentially stigmatizing (1). IGT and IFG are not clinical entities in their own right but are risk factors for future diabetes and cardiovascular disease. The 2006 WHO/IDF consultation on definition and diagnosis of diabetes proposed the use of the term "intermediate hyperglycaemia" to more accurately reflect the observation that glucose is a continuous variable and that these categories are based on somewhat arbitrary decisions on where to draw a line between normality and abnormality (2). Such a decision is required since glucose is approximately normally distributed in the population and there is no distributional distinction between categories (3). One major problem of labeling people as having pre-diabetes is that these categories are unstable (4) and that the short-term reproducibility of pre-diabetes is only of the order of 50%. Dichotomising the population into those with pre-diabetes and those who are normal ignores the continuous relationship between glucose levels and risk, both for diabetes (5) and its complications (6). The magnitude of the risk of progression from pre-diabetes to diabetes differs between populations and is heavily influenced by the frequency of repeated testing. It is therefore much higher in clinical trials with active and frequent endpoint ascertainment than in routine clinical practice (7). These considerations impact not only on our interpretation of pre-diabetes as a clinical entity but also on how we think about the balance between individualistic and collective approaches to prevention.

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