

A position statement on screening and management of prediabetes in adults in primary care in Australia - Brett A. Gordon- Holsworth Research Initiative, La Trobe University, VIC, Australia

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Abstract

Prediabetes has a high prevalence, with early detection essential to facilitate optimal management to prevent the development of conditions such as type 2 diabetes and cardiovascular disease. Prediabetes can include impaired fasting glucose, impaired glucose tolerance and elevated HbA1c. This position statement outlines the approaches to screening and management of prediabetes in primary care. There is good evidence to implement intensive, structured lifestyle interventions for individuals with impaired glucose tolerance. The evidence for those with impaired fasting glucose or elevated HbA1c is less clear, but individuals should still be provided with generalised healthy lifestyle strategies. A multidisciplinary approach is recommended to implement healthy lifestyle changes through education, nutrition and physical activity. Individuals should aim to lose weight (5–10% of body mass) using realistic and sustainable dietary approaches supported by an accredited practising dietitian, where possible. Physical activity and exercise should be used to facilitate weight maintenance and reduce blood glucose. Moderate-vigorous intensity aerobic exercise and resistance training should be prescribed by an accredited exercise physiologist, where possible. When indicated, pharmacotherapy, metabolic surgery and psychosocial care should be considered, in order to enhance the outcomes associated with lifestyle change. Individuals with prediabetes should generally be evaluated annually for their diabetes status. This position statement has been developed to provide consensus-based clinical recommendations for the screening and management of prediabetes in adults in the Australian primary care setting, with a focus on practical implementation. This statement provides general information and advice, and does not explicitly address populations with specific needs including

prediabetes in children or adolescents, disability or mental health. The reference list may not be exhaustive as the position statement is not a systematic literature review, rather a review of pertinent publications. Imbalances in glucose homeostasis without intervention, increase the risk of progression from prediabetes to type 2 diabetes. Women with prediabetes before pregnancy have a higher risk of developing gestational diabetes mellitus (GDM) [6,7]. GDM affects 9% of pregnancies in Australia [8], with rates as high as 30% in high-risk ethnically diverse regions of Australia [9]. Women with a history of GDM also have an increased risk of progressing to type 2 diabetes later in life [10]. Children born to mothers diagnosed with GDM during their pregnancies also have a much higher risk of future prediabetes and type 2 diabetes [11]. Prediabetes increases the risk of CVD by approximately 20% [12]. A meta-analysis of 53 prospective cohort studies, including >1.5 million individuals from general populations, identified that prediabetes was associated with an increased risk of CVD, with IGT posing the highest risk (18). However, health risks were observable in people with an IFG level as low as 5.6 mmol/L (19). Further, the AusDiab study reported that IFG was an independent predictor for CVD mortality (hazard ratio 2.5 (95% CI: 1.2–5.1) when compared to normal glucose tolerance, although IGT was not (1.2 (0.7–2.2)). The AUSDRISK is a short questionnaire, designed to estimate the risk of progression to type 2 diabetes over five years [14], using the risk factors for prediabetes and type 2 diabetes (Table 1). Adults in the 'intermediate risk' (scoring 6–11) or 'high risk' category (scoring 12 and above) should be tested for prediabetes (Fig. 1). Re-screening or testing should occur every 1–5 years, depending on the risk score. 4.2. Pathology screening Prediabetes can be identified by fasting blood glucose, HbA1c or an OGTT. Each test has benefits and limitations, and therefore the most appropriate test should be tailored to the individual. Each test will identify a slightly different group of individuals, such that each person may fall

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into one or multiple prediabetes states, i.e. IFG, IGT and elevated HbA1c. Since the clearest evidence of benefit for structured, intensive lifestyle intervention is among people with IGT, and much less certain in IFG or elevated HbA1c, it is recommended that an OGTT is performed before referral into a structured, intensive lifestyle program. Those with IFG or elevated HbA1c, but not IGT, should still be provided with general lifestyle advice.

4.2.1. Fasting venous blood test
A fasting venous blood test can be used to identify those with IFG, but not IGT. A fasting blood glucose of 6.1–6.9 mmol/L is indicative of IFG (Fig. 1)[15]. A fasting glucose of 7.0 mmol/L or above is indicative of type 2 diabetes[15].

4.2.2. HbA1c
HbA1c can be used to identify those at high risk of progressing to diabetes, but there is uncertainty about the precise range of HbA1c that should be used to identify prediabetes. The American Diabetes Association recommends 5.7–6.4% (39–46 mmol/mol) (23), while the International Expert Committee recommended 6.0–6.4% (42–46 mmol/mol)[16]

This position statement considered and synthesised the available evidence to inform treatment recommendations and the coordination of care services. However, this was not gathered through a systematic review. The following recommendations are made:

Individuals with clinical risk factors for prediabetes are recommended to receive formal screening using the Australian Type 2 Diabetes Risk Assessment (AUS-DRISK) screening tool. For those at high risk, pathology screening is recommended (fasting venous blood glucose test, HbA1c or oral glucose tolerance test). An oral glucose tolerance test is recommended before referral to a structured, intensive lifestyle program, as the clearest evidence for benefit of these programs is among people with IGT. The management of prediabetes should be multi-faceted, including lifestyle interventions, diet, physical activity, psychological support and with pharmacotherapy as appropriate. Education is best provided on diagnosis, and as frequently as needed or desired to support behavioural or pharmacological interventions. Care needs to be person-centred, treating the individual as an active participant in their health care team.

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