TITLE
Prediabetes among Aboriginal and Torres Strait Islander young people based on Glycated Haemoglobin (HbA1c) measurement: Results from the Next Generation Youth Well-Being Study

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Background:
Prediabetes occurs when blood glucose levels are higher than normal but below the threshold for diabetes. Prediabetes can progress to Type 2 Diabetes (T2DM) and may lead to complications such as heart disease, stroke, nerve damage, and eye and kidney disease. Rising obesity rates among Aboriginal and Torres Strait Islander (hereafter Aboriginal) young people are increasing the number of individuals at risk of developing prediabetes.

Methods:
We analysed Haemoglobin A1c (HbA1c) measurement data collected as part of a clinical survey from Aboriginal young people aged 10-24 years participating in the 'Next Generation Youth Well-being Study'. Relevant anthropometric and cardio-metabolic markers were also analysed. HbA1c% values were categorised based on the American Diabetes Association's recommended cut-offs.

Results:
HbA1c was measured in 635 young people (388 females and 247 males). Overall, 72% of young people had a normal HbA1c level (<5.7%), 28% were in the prediabetes range (5.7%–6.4%), and 1% had diabetes (≥6.5%). The proportion of young people having prediabetes was lower among 15–19-year-olds (19%) compared to 10–14-year-olds (33%) and 20–24-year-olds (29%). Participants with a low-risk waist-to-height ratio (WHtR ≤0.5) were 42% less likely to have prediabetes than participants with a high-risk WHtR (adjusted prevalence ratio (aPR) 0.58, 95% CI: 0.45–0.74). Similarly, participants with a normal Body Mass Index were 50% less likely to have prediabetes than participants who had obesity (0.50; 0.35–0.71). Participants with an ideal cholesterol-HDL ratio (≤0.5) were 39% less likely to have prediabetes than those with a high ratio (0.61; 0.41–0.90).

Conclusion:
Most participants in our study had normal HbA1c levels; however, over one in four had prediabetes, which was associated with markers of high adiposity and altered lipid profile. Early detection and management of prediabetes, along with culturally appropriate interventions targeting obesity, may delay or reduce progression to T2DM among Aboriginal young people.

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