**Abstract title (max. 25 words):**

*The title should be as brief as possible and clearly indicate the nature of the abstract. If you wish to include a subtitle, it must be included in this field and included in the 25-word limit.*

Perioperative Glycaemic Control and Perioperative Outcomes in Aboriginal and Torres Strait Islander People with Diabetes Mellitus Undergoing Surgery in South Australia

**Abstract (max. 300 words):**

*The abstract structure should include: aim, method, results, conclusion*

**Aim:** Diabetes mellitus (DM) disproportionately impacts Aboriginal and Torres Strait Islander people, who comprise 3.8% of the Australian population. DM also predisposes to perioperative dysglycaemia and associated morbidity and mortality. Literature suggests Aboriginal and Torres Strait Islander people experience disproportionate perioperative morbidity and mortality, but their perioperative glycaemic control has not been evaluated.

**Method:** A retrospective cohort study was conducted involving 16,396 non-pregnant adults with DM undergoing surgery in eight South Australian hospitals (2018-2023). Patient demographics, admission characteristics, preoperative comorbidities, and perioperative medications, blood glucose levels (BGLs) and complications were compared between Aboriginal and Torres Strait Islander people and non-Indigenous Australians. Comparative analyses were performed using Chi-squared and non-parametric tests for categorical and numerical data respectively. Outcomes were analysed using Generalised Estimating Equation models.

**Results:** Aboriginal and Torres Strait Islander people (n=1,065) were over-represented (6.5%), younger (54.3 vs 68.2 years, p<0.0001) and less likely to be female (47.9% vs 58.4%, p<0.0001). Despite higher pre-admission HbA1c (8.42% vs 7.83%, p<0.0001), mean perioperative BGLs were lower (8.7 vs 8.8mmol/L, p=0.0324), and both perioperative glycaemic variability (coefficient of variation: 21.3% vs 21.6%, p=0.0454) and perioperative glycaemic ratios (1.241 vs 1.284, p=0.3817) were comparable. Nevertheless, they experienced more preoperative diabetes-related comorbidity (coronary artery disease: 26.8% vs 14.8%, p<0.0001) (chronic kidney disease: 21.9% vs 15.2%, p<0.0001) and perioperative complications (myocardial infarction (MI): odds ratio (OR)=3.29, 95% confidence interval (95%CI)=2.61-4.17, p<0.0001) (in-hospital mortality: OR=2.16, 95%CI=1.30-3.58, p=0.0029). Adjusting for known confounders did not eliminate these associations (MI: adjusted OR (aOR)=1.48, 95%CI=1.09-2.20, p=0.0131) (in-hospital mortality: aOR=2.30, 95%CI=1.37-3.85, p<0.0001).

**Conclusion:** Aboriginal and Torres Strait Islander people with DM undergoing surgery are approximately 14 years younger than their non-Indigenous Australian counterparts, but experience more preoperative morbidity and perioperative complications. Possible contributors include higher cumulative glycaemic exposure, highlighting the importance of long-term glycaemic optimisation and preoperative planning to reduce perioperative inequity.