**Title: Heterogeneity in management of diabetic ketoacidosis in Australia: a national survey**

**Background**: Diabetic ketoacidosis (DKA) is a hyperglycaemic emergency and insulin

administration is highly protocolised with either variable or fixed rate intravenous infusions. There are limited data supporting superiority of one regimen over another; however, international guidelines recommend fixed rate infusions.

**Aim**: To characterise DKA management protocols used in Australian hospitals.

**Methods**: An online survey of Australian endocrinologists and intensive care physicians between May and July 2024. Main outcome measure was proportion of respondents using a fixed or variable rate, or combination, for management of DKA. Secondary outcomes were location of management, definition of resolution and intravenous fluid specification.

**Results**: There were 31 respondents from individual hospitals around Australia, 84% endocrinologists, 84% metropolitan hospitals. There was wide variation in insulin regimens including fixed (n=12, 39%), variable (n=14, 45%) and combination (n=5, 16%) infusion protocols. Most (23/30, 77%) respondents had worked at another hospital that had a different DKA management protocol. There was a 50% split (n=14 each) in personal preference for fixed or variable rate infusion with 3 respondents having no preference. The primary location of DKA management was split between the emergency department (n=9, 29%), intensive care unit (n=8, 26%), high dependency unit (n=4, 13%) and ward (n=10, 32%). Most (21/31, 68%) protocols defined resolution of DKA. Blood pH (15/21, 71%) and/or ketone level (18/21, 86%) were the most frequently used end points to define resolution. Specification of rate of intravenous fluids was common (n=26, 84%), as was specification of type of intravenous fluids (n=23, 79%). The most commonly specified intravenous fluid type was 0.9% sodium chloride (n=19, 86%), with 3 (10%) protocols specifying balanced crystalloid.

**Conclusions**: There are substantial variations in insulin regimens and resolution criteria in DKA management protocols across Australian hospitals. Clinician preference was diverse. This likely reflects the lack of high-quality evidence to guide practice.