Sweet Retrospection: *An audit of insulin regimes for paediatric first presentation type 1 diabetes at Gold Coast Hospital and Health Service*

**Background & Aim:** First presentation type 1 diabetes (T1DM) is a common and consequential paediatric presentation in the Gold Coast Hospital and Health Service (GCHHS). GCHSS policy follows ISPAD basal-bolus recommendations; a total daily dose (TDD) of ~1 unit/kg/day is given as 0.4 units/kg basal and 0.6u/kg bolus per the 500:100 rule. However, it is important to contemporaneously evaluate policy. This audit aimed to review the efficacy of GCHHS’ insulin initiation protocol for patients with T1DM.

**Methods:** 220 diabetes-related paediatric presentations at GCHHS over two years were reviewed, with 44 included for analysis. Using historical iEMR records, data was collated from first presentation, discharge and follow-up. Long acting insulin dosage (LA), insulin sensitivity factor (ISF), and carbohydrate ratios (CHO) were each compared longitudinally, and further subgrouped by age and severity of diabetic ketoacidosis (DKA). Qualitative data was also collated on documentation standards.

**Results:** When comparing presentation and follow up, overall LA dosing increased by 3.57%, ISF increased 9% (weaker ratio) and CHO decreased 0.41% (stronger ratio). The largest changes in LA were seen in the preschool age group and severe initial presentations. ISF varied the most in the highschool and moderate DKA groups. CHO saw the largest changes in preschool and children not presenting in DKA. There was relative consistency in the application of the formulae, however variation in documentation and clinical discretion lead to some diversity in regimes.

**Discussion/conclusion:** A slight trend towards children finishing on higher basal and weaker bolus doses is likely negated by clinical discretion and choices in rounding, limiting any practical significance. Documentation impeded analyses when inadequate to retrospectively appreciate decision making. Trends to a longitudinal increase in TDD/kg and strengthening in ISF and CHO for pre-school children may provide some comfort for the trepidatious prescriber.

Overall, the follow up regimes closely mirrored the starting regime, reinforcing the efficacy of existing GCHHS protocol.