

Advancing dietetic practice in Type 1 diabetes care within an insulin pump service



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Background

- Insulin pumps are emerging as a standard treatment in Type 1 diabetes care. As demand increases, there will be an increased need to upskill multidisciplinary teams to deliver clinical pathways to pump therapy.
- The UK Diabetes Technology Network (DTN) recommends that diabetes nurses and diabetes dietitians are trained (in structured education and pump therapy with intensive insulin management skills) to fulfil the role of diabetes educator in insulin pump pathways¹. However, pump onboarding and pathway development would not be a traditional part of dietetic practice in Ireland.

Aims, objectives and research design

- Here we describe the development of a clinical specialist dietitian-provided insulin pump pathway for adults with Type 1 diabetes, initiated during an 18-month diabetes nurse staffing crisis, in an acute diabetes service in Dublin.
- We also include a retrospective audit detailing insulin pump onboarding data from July 2022-December 2023, and 6-month glycaemic outcome data.
- Data were gathered from clinical records, Carelink ©, Clarity © and Tidepool © online platforms. Data were analysed using Microsoft Excel and presented as mean ± standard deviation or range as appropriate.

Results

- An insulin pump pathway was developed (Figure 1) adapted from the DTN Best Practice guide¹
- In the 18-month period, 76 pumps were included; either onboarded as new users (27 [36%]) or as upgrades (45 [64%]).
- Forty-three (56%) were Tandem T:Slim, while the remaining 33 (43%) were Medtronic 780g. Sixty-five (86%) were facilitated in a group (2-7 participants) and 11 (14%) in a one-to-one session.
- At 6-months all 76 individuals continued to use an insulin pump. Paired data were available for 34 individuals, showing a significant improvement in markers of glycaemia (Table 1)

Figure 1: Insulin pump pathway

Preparation and triage

- Structured education (DAFNE) / training in carbohydrate counting and insulin adjustment skills
- Pump selection supported by information booklet
- Triage of glycaemia, hypoglycaemia awareness (Gold score) and diabetes distress to determine technical settings and support needs in conjunction with Consultant Endocrinologist

Onboarding

- Prescription and training date organisation
- Training with technical support from pump representatives
- Education session and booklet covering clinical care aspects

Follow up and documentation

- Standardised but flexible schedule of weekly follow up based on initial triage and emerging needs
- Setting adjustment facilitated by local protocols, data sharing and data consultation
- Standardised electronic proformas and databases for ordering, data collection and case tracking

Table 1: Glycaemic outcomes

	Baseline	6 months	p-value
HbA1c / GMI (%)	8.0 ± 0.9	7.4 ± 0.6	<0.001
TIR (%)	45.3 ± 18.2	63.4 ± 14.2	<0.001
TUR (%)	2.9 ± 3.5	2.0 ± 0.8	NS
TAR (%)	53.0 ± 18.7	35.2 ± 14.7	<0.001
SD (mmol/L)	3.6 ± 0.6	3.2 ± 0.6	<0.001

Abbreviations: HbA1c, glycated haemoglobin; GMI, glucose management indicator; TIR, time in range; TUR, time under range; TAR, time above range; SD, standard deviation

Conclusions

- Insulin pumps are an increasingly popular option for managing Type 1 diabetes. Embedding pump therapy in Type 1 diabetes services and supporting individuals to access and get the best from insulin pumps requires a structured approach to planning and delivery.
- We have shown here that Clinical Specialist Diabetes Dietitians can fulfil an advanced practice role in developing and delivering an insulin pump pathway. The relevant skills and competencies displayed included clinical leadership, triage, high quality service development and delivery, multidisciplinary working, audit and advanced clinical knowledge and practice in relation to Type 1 diabetes and pump therapy.
- We have also shown significant improvements in glycaemia which are in line with international data in services delivered by specialist multidisciplinary teams. Empowering and training all members of the diabetes multidisciplinary team to embed pump therapy in standard Type 1 diabetes care in Ireland is important for timely and equitable access.

References: ¹ Griffin TP, Gallen G, Hartnell S, et al. UK's Association of British Clinical Diabetologist's Diabetes Technology Network (ABCD-DTN): Best practice guide for hybrid closed-loop therapy. *Diabet Med.* 2023; 40:e15078.