

**Addressing Health Inequalities in
Paediatric Diabetes Care –
Supporting Access to Hybrid
Closed-Loop Pumps for Families
with a Language Barrier**



Background



- Health inequalities can have a significant impact on an individual's ability to access health care
- In paediatric diabetes care, health inequalities can significantly affect access to advanced technologies such as hybrid closed-loop (HCL) pumps
- Use of this technology has been shown to improve glycaemic control and long-term outcomes
- Language barriers present a potential for limited understanding, engagement and confidence in using diabetes technology
- We identified that within our paediatric diabetes service that families with limited English proficiency were less likely to begin using HCL pumps



Aims

- To improve access to HCL pump therapy for families with a language barrier by developing a structured, culturally sensitive pathway
 - To ensure safe initiation to HCL pumps
 - To facilitate improved understanding of HCL pumps
 - To facilitate ongoing follow-up and engagement
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Identified Barriers

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- ▶ Limited access to clear, understandable education around pump therapy
 - ▶ Reliance on interpreters. This can reduce continuity and increase complexity
 - ▶ Reduced confidence in managing the technology and/or seeking support
 - ▶ Risk of miscommunication during key safety discussions
 - ▶ Logistical challenges in coordinating interpreter-supported appointments



Approach Part 1- Identification and Planning

- Families wishing to commence use of HCL pumps are identified in clinic or via contact with the diabetes team
 - Language needs are typically known due to previous contact with the family and hospital records
 - 1:1 sessions or small groups of families sharing the same first language are arranged
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Approach Part 2 – Invitation and Engagement

- Families were invited to the pump training session either:
 - Face-to-face during clinic with an interpreter present
 - Via telephone with a telephone interpreter present during the call



Approach 3 – Pre-Pump Support Session

- A one-to-one session or small group session was arranged with a Paediatric Diabetes Nurse Specialist (PDSN)
- Focus areas included:
 - Support with completing the onboarding process if applicable
 - Structure of the upcoming pump training session
 - Discussion on the basic workings on a HCL pump system compared to MDI or standard non-HCL pumps
 - Required equipment and preparation for the pump start session
 - Obtaining information regarding current insulin regime in order to calculate rates for the HCL pump
 - Discussing school management of the new HCL pump system



Approach Part 4 – Pre-Start Safety Contact

- ▶ A phone call was conducted 2-3 days prior to the pump start using a telephone interpreter
- ▶ This call provides an opportunity to:
 - ▶ Remind what equipment is needed on the day of the pump start
 - ▶ Remind to reduce long-acting insulin (if necessary)
 - ▶ Answer any questions/address any concerns



Approach Part 5 – Pump Start Session

- ▶ The pump start session was delivered as:
 - ▶ A one-to-one session
 - ▶ A small group if the families required an interpreter for the same language
- ▶ Attendees included:
 - ▶ PDSN
 - ▶ Clinical educator from the pump company (Educators were informed of the need for an interpreter so extra time could be given)
 - ▶ Interpreter (or bilingual staff member where appropriate)



Approach Part 6 – Post-Pump Session Follow-Up

- A follow-up phone call was conducted to provide support using a telephone interpreter (or bilingual staff member where appropriate). This call focused on:
 - Reinforcing learning
 - Addressing changes where required
 - Supporting confidence and coherence
 - Establishing whether or not the HCL pump has had a positive impact on the user
 - PDSNs arranged further calls or F2F reviews as required



Extra Notes

- ▶ Three families had some proficiency in English. These families had an interpreter only for the pump start session.
 - ▶ For Urdu-speaking families, a bilingual staff member interpreted
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Outcomes/Impact



- This pathway has been used to support 14 families within our paediatric diabetes service over the past 18 months
- These families required support with a language barrier in order to access HCL pump therapy
- Across these families, 5 different languages were spoken and these needs were addressed by use of an interpreter or a bilingual staff member
- There were improvements in:
 - HbA1C
 - Time in Range
- 6 of the families directly expressed appreciation to the team for arranging a pump start with an interpreter and expressed how this has supported them.
- 7 of the families directly expressed that they prefer using the pump (some were on pumps before, so had experience with pump therapy)

Outcome Table 1

	Language Spoken	Duration of Diagnosis at Time of HCL Pump Start	Pre-HCL Pump Treatment	HbA1C before HCL	HbA1C at 3 months post-HCL	HbA1C at 6 months post-HCL	HbA1C at 9 months post-HCL	HbA1C at 12 months post-HCL	Notes
Patient 1	Kurdish	4 years	Non-HCL Pump	6.2% / 44mmol	6.4% / 46mmol	NA	NA	NA	
Patient 2	Lithuanian	18 months	MDI	6.9% / 52 mmol	7.6% / 59 mmol	NA	NA	NA	
Patient 3	Urdu	3 years	Standalone Pump	8.2% / 66mmol	7.6% / 60 mmol	8.4% / 66mmol	Missed appt	7.6% / 60 mmol	@6 months, increase in insulin need. Missed 9 month appt
Patient 4	Urdu	14 months	MDI	7.1% / 54 mmol	7.1% / 54 mmol	7.3% / 56 mmol	6.8% / 51 mmol	6.7% / 49 mmol	@6 months, requirement to adjust settings
Patient 5	Urdu	4 years	MDI	7.7% / 60 mmol	7.3%/50 mmol	7.9% / 63 mmol	DNA	7.9% / 63 mmol	@6 months pt was reducing boluses as they altered ICR, but adjusted the wrong way and made ICR stronger @ 12 months – adjustments required to rates. Pt was also misusing the pump – instead of correction dose, was giving “ghost carbs”

Outcome Table 2

	Language Spoken	Duration of Diagnosis at Time of HCL Pump Start	Pre-HCL Pump Treatment	HbA1C before HCL	HbA1C at 3 months post-HCL	HbA1C at 6 months post-HCL	HbA1C at 9 months post-HCL	HbA1C at 12 months post-HCL	Notes
Patient 6	Arabic	3 years	Standalone pump	7.7% / 61 mmol	(at 2 months) – 7.5% / 59 mmol	(at 4 months) – 7.3% / 56 mmol	(at 6 months) – 7.4% / 57 mmol	(at 10 months – not yet been 12 months) – 6.9% / 52 mmol	
Patient 7	Arabic	3 years	MDI	6.3% / 63mmol	(at 2 months) - 5.1% (32 mmol)	6.4% / 56 mmol	7.9% / 62 mmol	Has not yet been 12 months	Fairly newly diagnosed – likely in remission period at pump commencement. In clinic at 9 months post pump start, identified increase in insulin requirements
Patient 8	Arabic	4 years	MDI	6.9% / 52 mmol	7.2% / 55 mmol	(at 5 months) – 6.4% / 47 mmol	DNA	Has not yet been 12 months	@ 3 months – having skin reactions, impacting consistent use of pump. Keen to remain on pump
Patient 9	Arabic	2 years	MDI	7.7% / 61 mmol	(at 2 months) 7.6% / 59 mmol	Moved abroad	Moved abroad	Moved abroad	Moved abroad
Patient 10	Somali	11 months	MDI	8% / 64 mmol	7.7% / 61 mmol	Has not yet been 6 months	Has not yet been 9 months	Has not yet been 12 months	New diagnosis, under 3 at time of pump start

Outcome Table 3

	Language Spoken	Duration of Diagnosis at Time of HCL Pump Start	Pre-HCL Pump Treatment	HbA1C before HCL	HbA1C at 3 months post-HCL	HbA1C at 6 months post-HCL	HbA1C at 9 months post-HCL	HbA1C at 12 months post-HCL	Notes
Patient 11	Urdu	2 years	Non-HCL Pump	8.4% / 68 mmol	(at 4 months) – 7.6% / 50 mmol	DNA	(at 8 months) – 7.5% / 58 mmol	7.1% / 55 mmol	
Patient 12	Urdu	2 years	Non-HCL Pump	7.9% / 63 mmol	6.8% / 51 mmol	(at 5 months) – 7.5% / 59 mmol	(at 8 months) – 7.3% / 56 mmol	(At 11 Months) – 6.9% / 51 mmol	
Patient 13	Urdu	6 years	Non-HCL pump	7.7% / 60 mmol	7.2% / 55 mmol	(At 5 months) – 6.8% / 51mmol	(At 11 months) – 6.8% / 51 mmol	(At 15 months) – 7% / 53 mmol	@15 months – increase in insulin requirement
Patient 14	Urdu	6 years	MDI	7.9% / 63 mmol	(At 2 months) – 8.7% / 71 mmol	(At 5 months) – 8.2% / 66 mmol	DNA	Has not yet been 12 months	Several adjustments required after commencing on HCL

Key Learning Points

- Productive planning and structured pathways are essential to address inequalities
- Repetition and staged education work to improve understanding and safety
- Interpreter-supported care requires additional time, but is essential for equitable access to technologies
- Bilingual staff members can significantly enhance patient experience and communication
- Small group models can improve efficiency while maintaining quality
- All CYPs are at risk of burn-out and require insulin adjustments as they grow. Where there is a language barrier, interpreters should be used to support with this



Ongoing Uses

A similar or adapted approach could also be used to:

- Facilitate access to future technologies
- Facilitate commencing HCL at diagnosis
- Can be used to continuously review and support families



Questions?