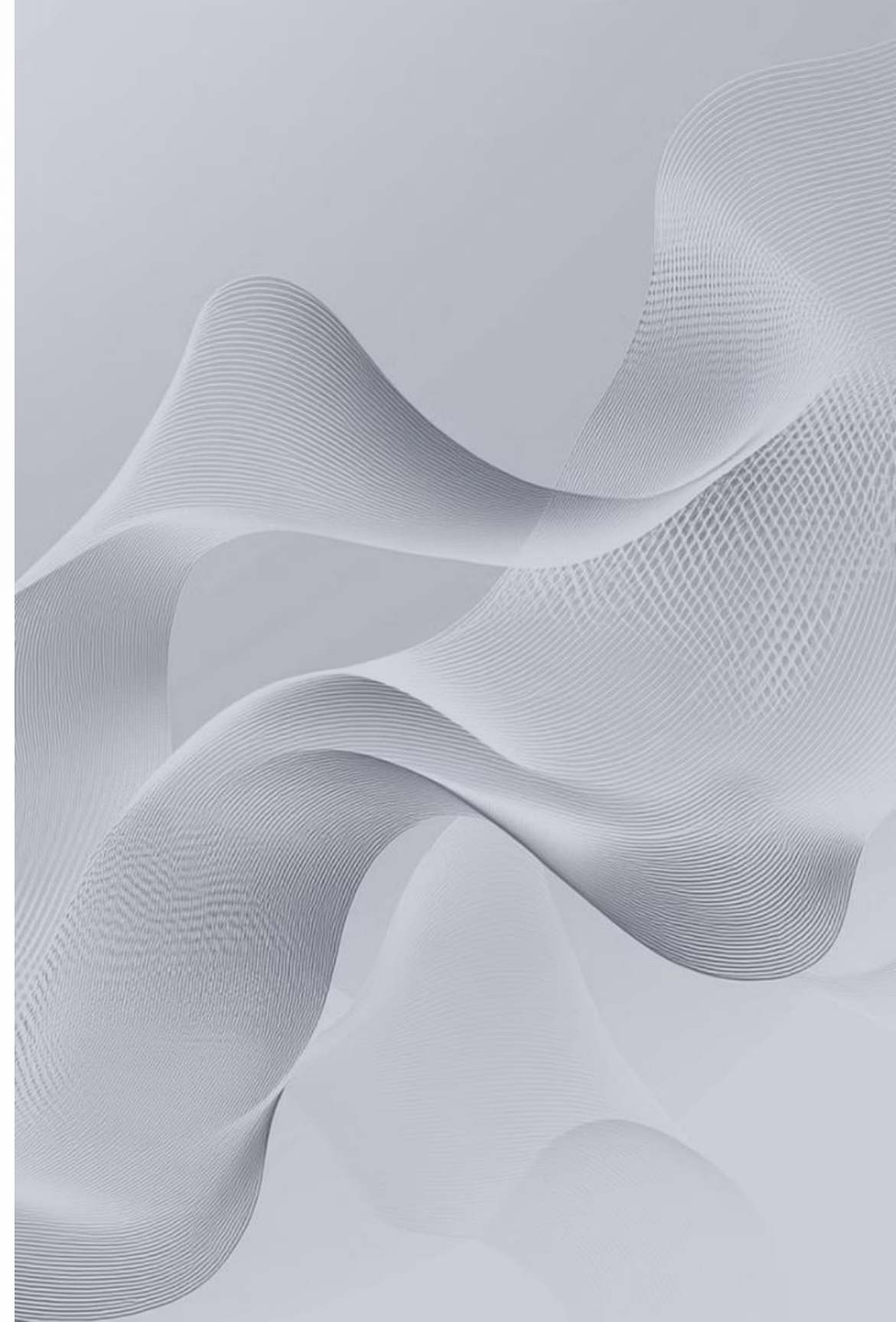


Closed Loops & Open Doors: Doors: Ending the Revolving Door of DKA Admissions

Using HCL therapy to finally break the
cycle

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Introduction

□ Recurrent DKA is a marker of unmet need

□ Focus: Innovation, inclusion, and impact

□ Traditional models often focus on acute treatment, not long-term prevention

The Burden of Diabetes Decision Making

Managing diabetes requires constant vigilance and countless daily choices for both people living with Diabetes and clinicians.

180

Daily Decisions

Clinical choices required for optimal diabetes management

42%

Decision Fatigue

People with Diabetes reporting overwhelm from constant vigilance

5+

Data Sources

Glucose, carbs, activity, stress, and medication inputs

24/7

Monitoring Need

Unrelenting nature of diabetes management

Enter Hybrid Closed Loop (HCL)



Automates basal insulin delivery



Reduces burden of decisions



Increases time in range



Improved engagement in "hard to reach" groups

The DKA Cycle; Revolving door phenomena

Repeat DKA admissions often involve:

- Mental health challenges
- Disengagement
- Complex social needs
- Language Matters
- Broken Trust
- Not the biggest priority – at the time.

Clinical burden:

- Increased morbidity and mortality
- Implications of elevated HbA1c for extended periods
- Re-Admission rates for DKA

Rethinking the Solution

HCL Pump Therapy

Barriers:

- Inconsistent engagement
- Burden of decision-making
- Limited access to structured education or support
- Technology paradox



Breaking the Cycle

Case Study 1

1

Profile

- 20 year old female, diagnosed as T1DM during pregnancy at 28 weeks May 2024
- Initial HbA1c 64mmol/l April 24, 75mmol/mol May 24, 74mmol/mol June 24
- Post- Pregnancy - 111mmol/mol October 2024

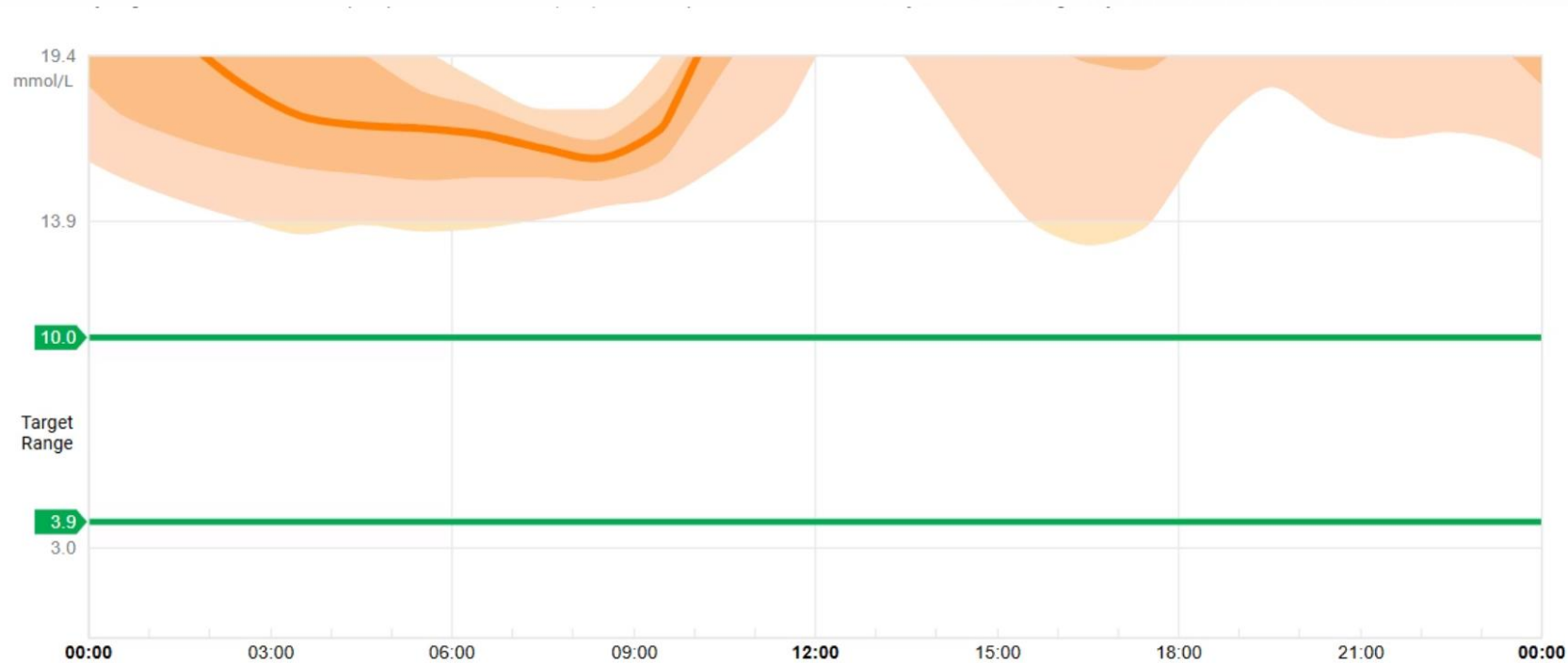
2

Challenges

- Significant needle phobia
- New Parent
- Known LD
- Social support - low health literacy and "full plates"

Pre-Pump

Dexcom, Medtronic iPort, Smart MDI (briefly)



Dexcom Data

Glucose Details Average glucose: 19.7 mmol/L

GMI: 11.8%

CV: 14.9%

Very High: 97% High: 3% **In Range: 0%** Low: 0% Very

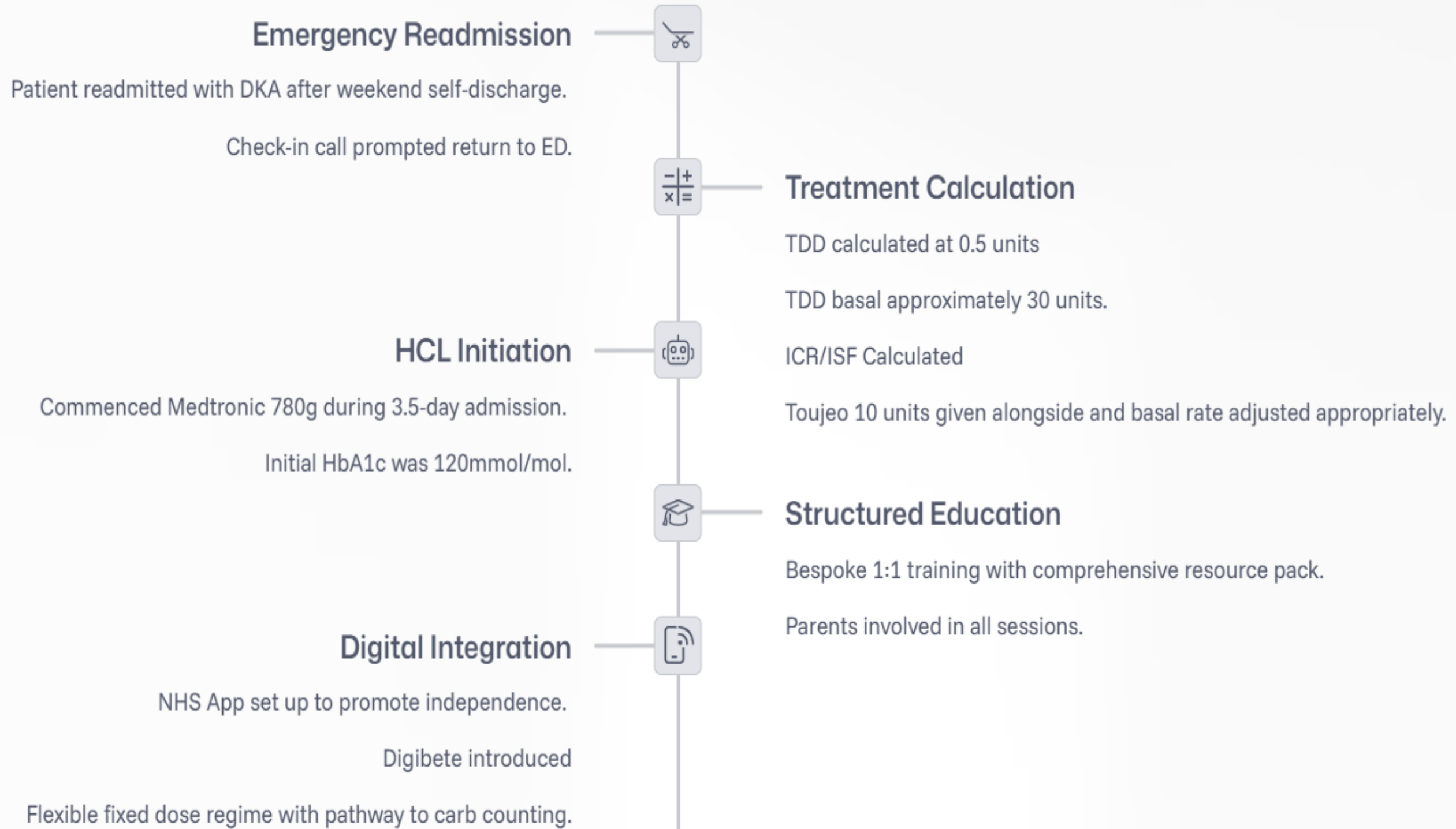
Low: 0%

Insulin Therapy

Toujeo: approx 30 units OD - moved to twice daily (15 units AM/PM) due to pain on injection, even in iPort

Fiasp: Varying doses reported, in 2 weeks prior to admission hadn't taken in an extended period, documented as 10 units with meals.

Full Admission Strategy



Initial Follow up and Progress

Intensive Support Phase

1-3 days contact via telephone and email during initial weeks.

DSN reviews approximately every 4 weeks with gradual reduction in contact.

Clinical Outcomes

Consultant review at 3 months post-pump initiation.

HbA1c dramatically improved from 120mmol/mol (Dec 2024) to 62mmol/mol (Mar 2025).

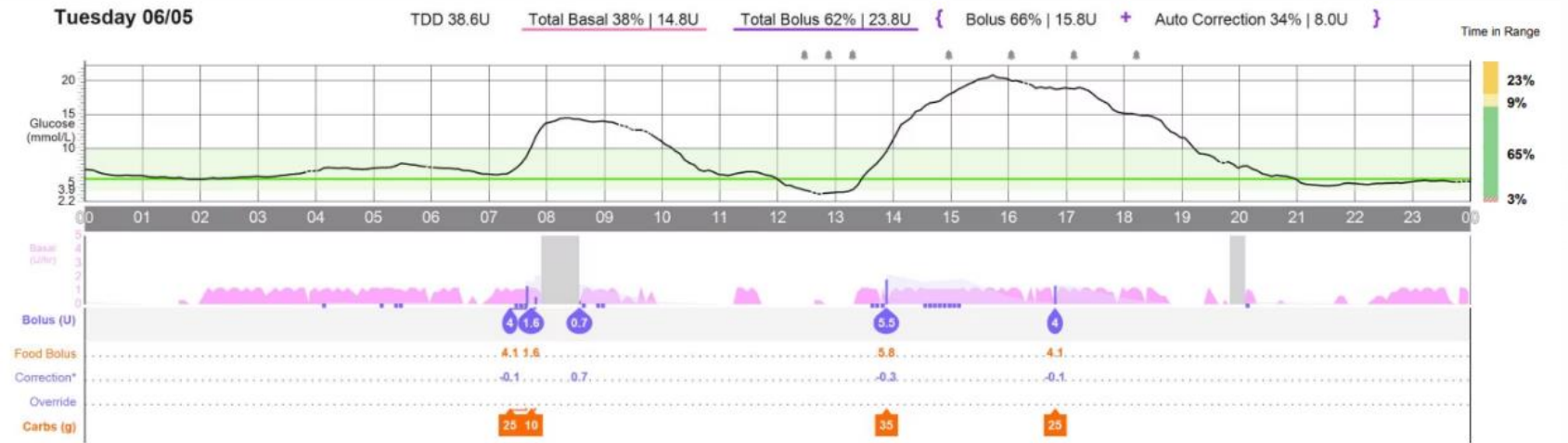
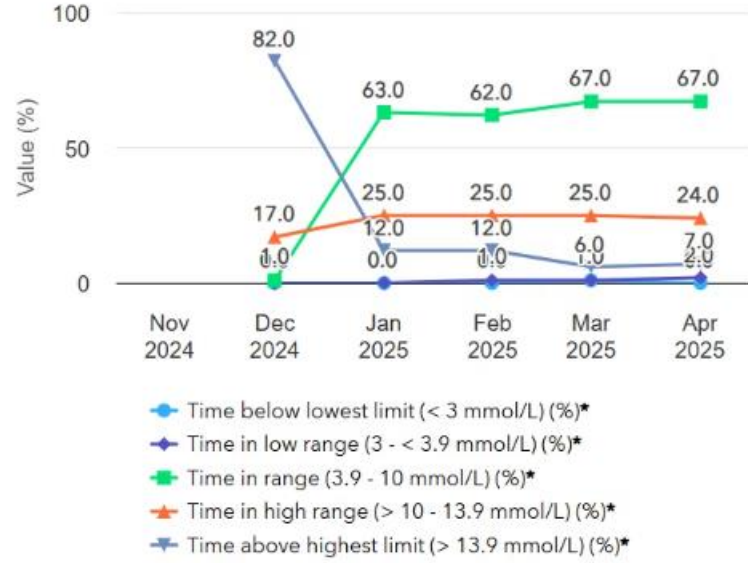
Patient Success Markers

Time in Range increased from 0% to 71% by May 2025.

Now independently carb counting with no readmissions.

GMI further improved to 53.4mmol/mol.

Time in ranges (%)



Case Study 2



Profile

- 19-year-old male, T1DM since 2020.
- Known for last 3 years via Transition prior moving into Adults in Sept 2024
- Known significant injections missed
- 4 admissions for DKA June-Dec 2024
- HbA1c 130+ since diagnosis, 157mmol/mol Dec 24



Intervention

- Medtronic 780g
- 1 to 1 education
- Initiated prior to discharge
- 40% basal given as pen injection



Outcome

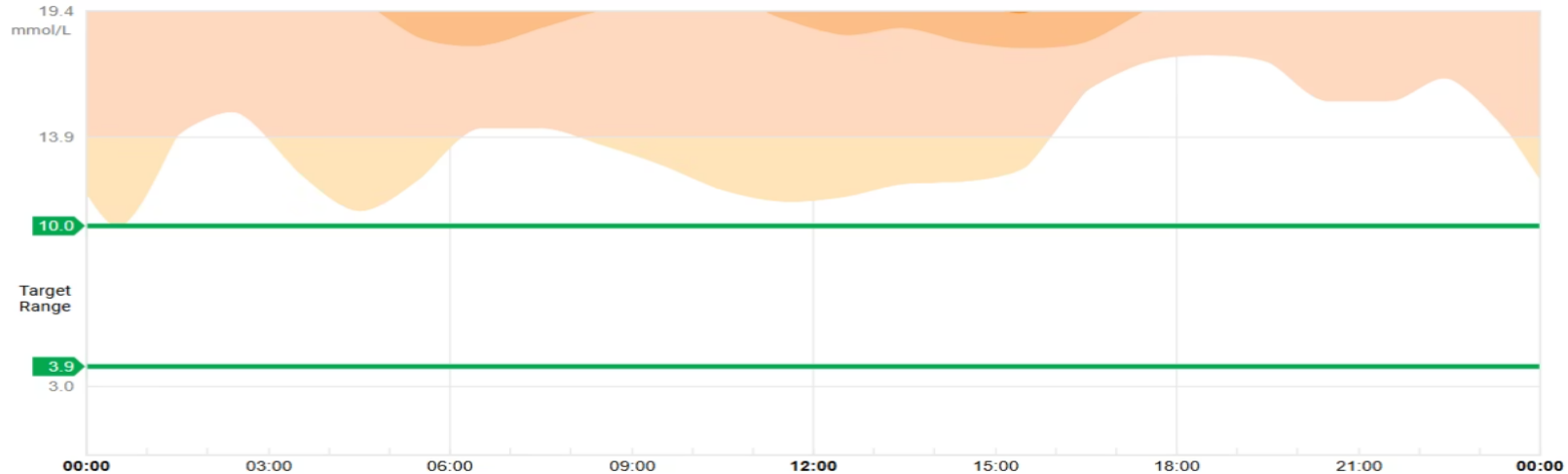
- TIR from 0% → 58-65%
- 0 Admissions since initiation
- People with Diabetes reports: it's the best he has felt, ever. Since diagnosis.

Initial Follow-up and Progress

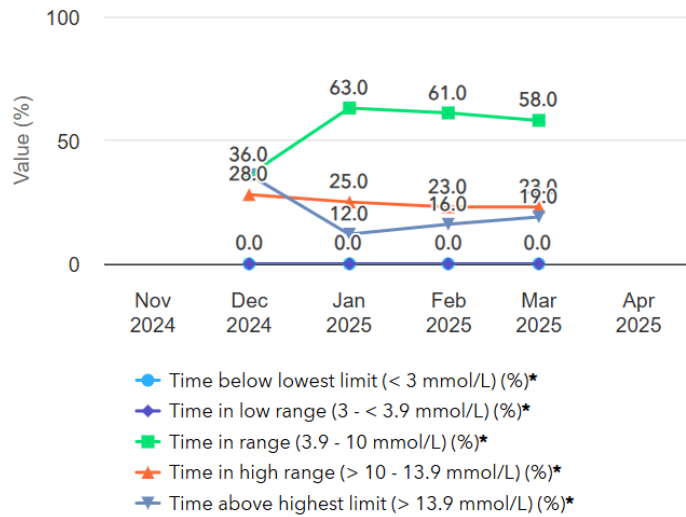
- **Complex Case Management:** Person with significant mental health challenges required tailored support approach.
- **Open Door Policy:** Implemented flexible accessibility to services, improving trust and reducing barriers.
- **Supply Verification:** Cross-referenced prescriptions to ensure continuous insulin and equipment availability.
- **Zero DKA Admissions:** No hospital readmissions since HCL implementation, breaking previous cycle.
- **Data Gap:** Records from April 2025 not yet restored, working to re-establish continuous monitoring.

Ambulatory Glucose Profile (AGP)

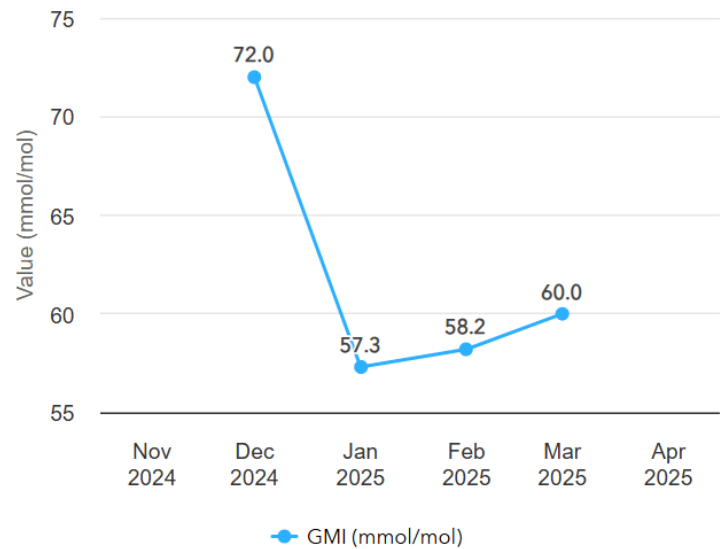
AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if they occurred in a single day.



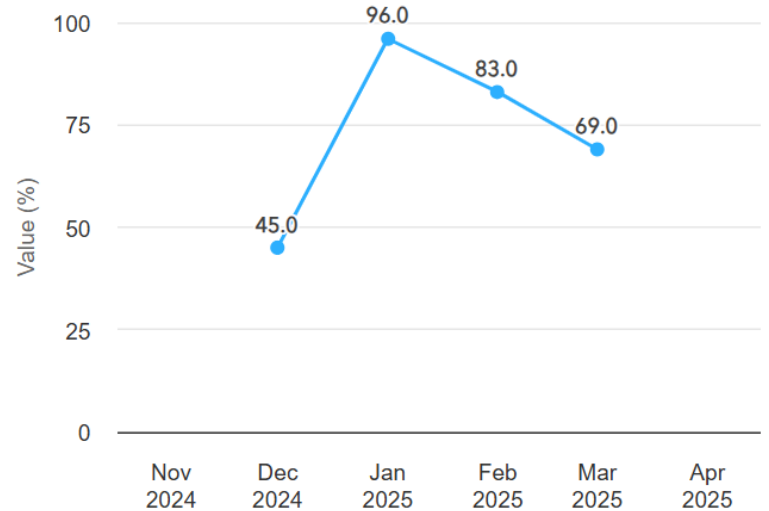
Time in ranges (%)



GMI (mmol/mol)



Sensor wear (%)



Case Study 3

1

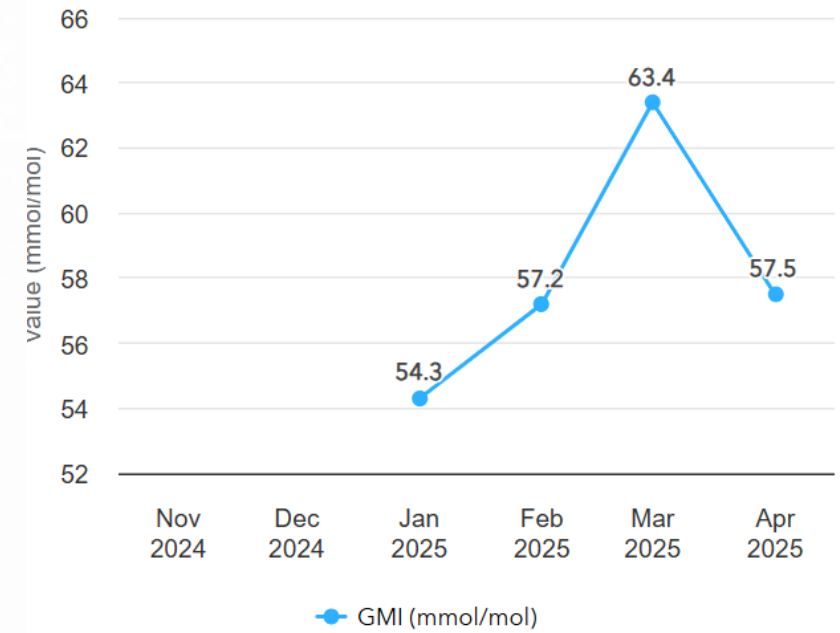
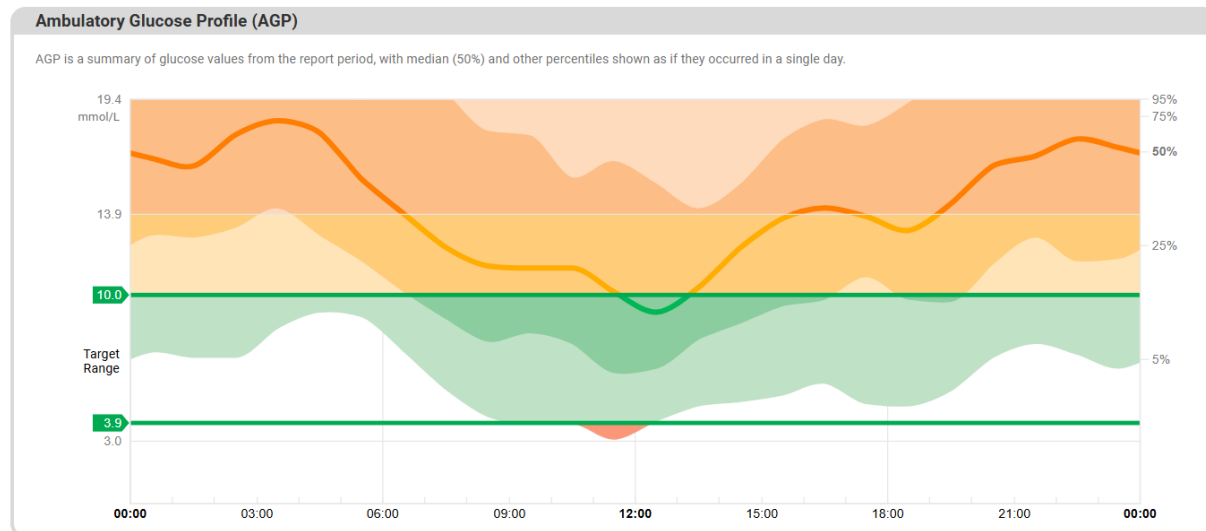
Profile

- 18 year old male, diagnosed as T1DM – May 2023
- HbA1c 141 Dec 2024
- 3 DKA admission from June 2024 – Dec 2024
- Younger Sibling diagnosis in 2024 of T1DM
- Social support - Low

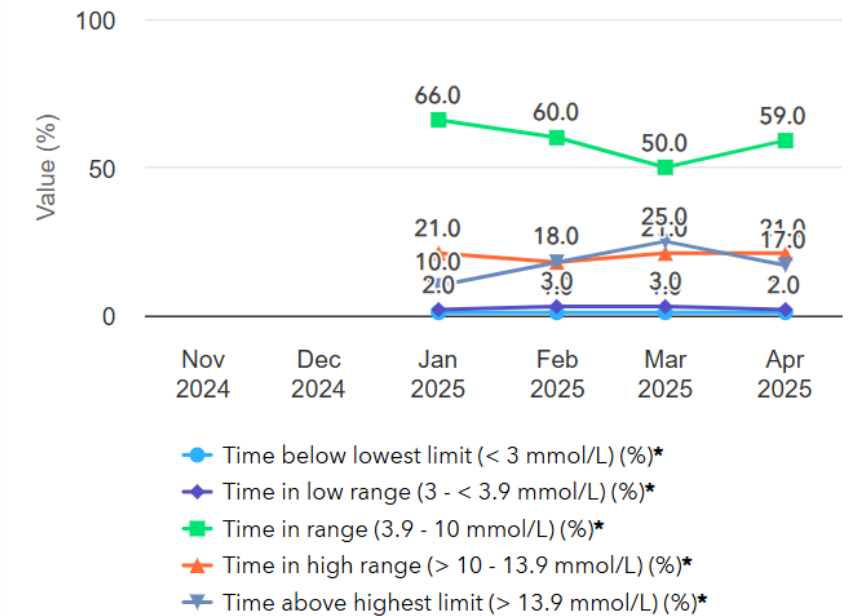
2

Admission with DKA

- Continued Basal insulin injection – 40% of total basal
- Close follow up with tailored contact approach to suit his needs.
- Medtronic 780g as a part of a group start in the week following Dx



Time in ranges (%)



Barriers to Adoption

Technology fatigue and digital digital exclusion



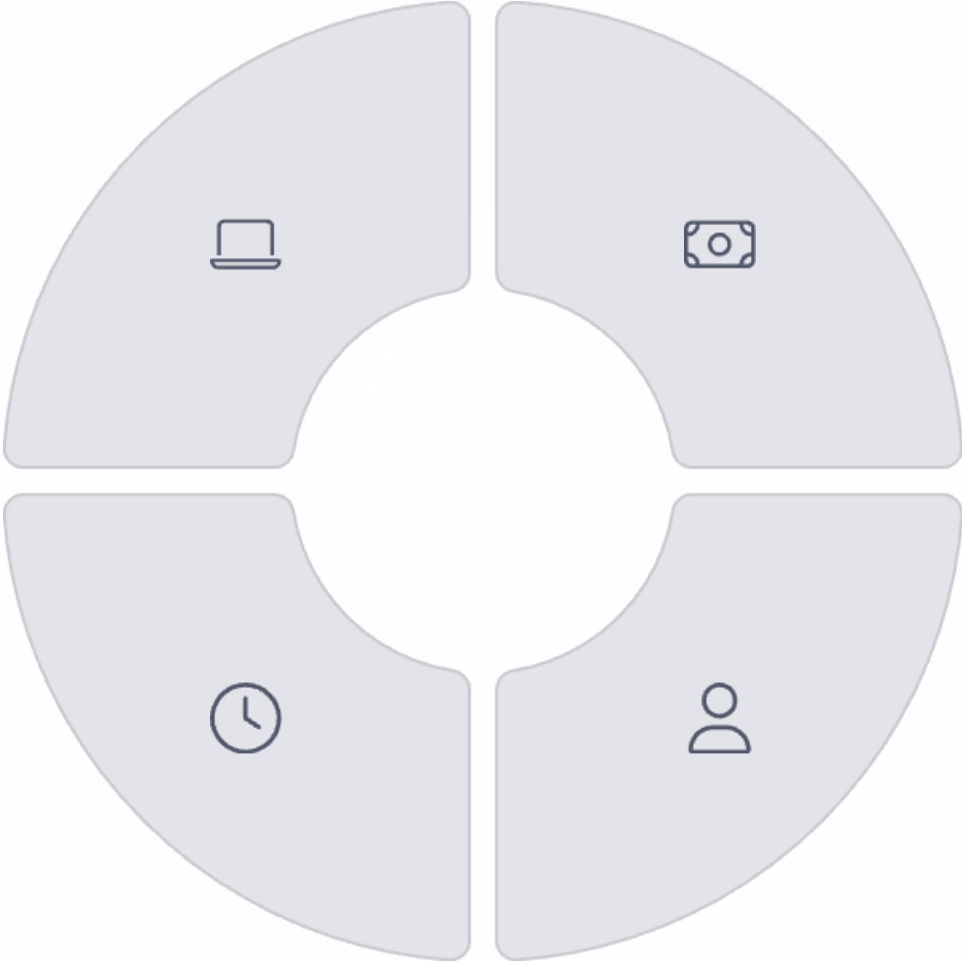
Funding and eligibility criteria criteria



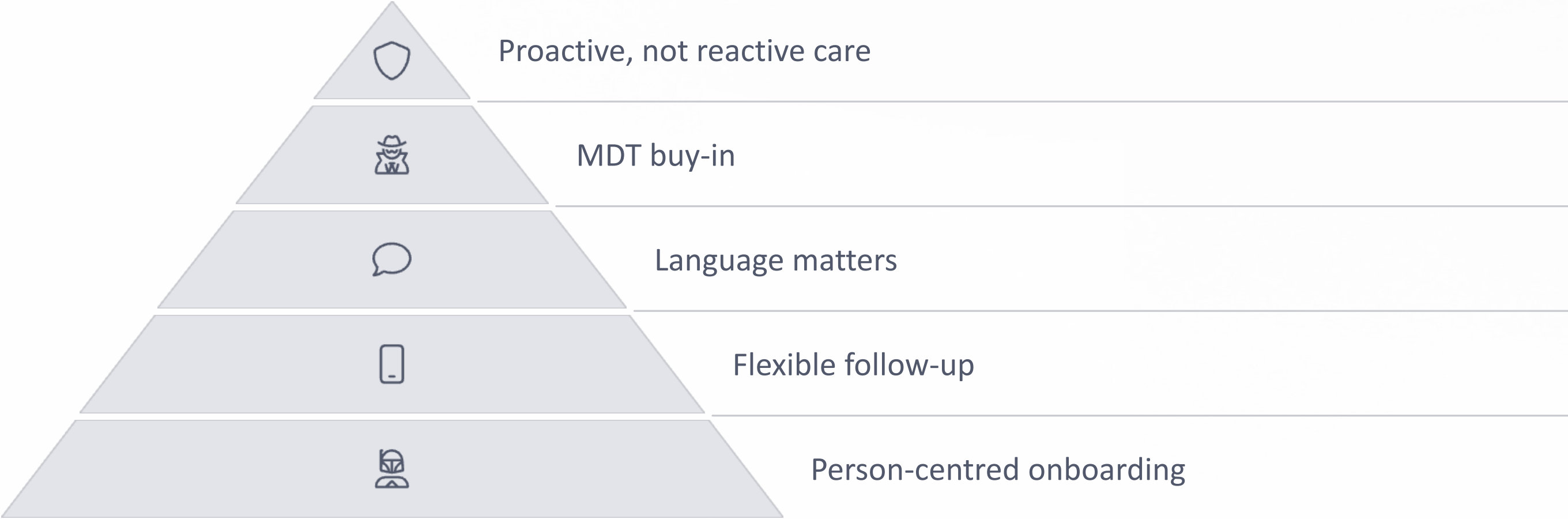
Staff confidence and time



Cultural Change; Tech is essential essential



Key Enablers of Success



Lessons Learned



Systemic change requires belief, not just tools



Inclusion is the intervention



HCL can transform lives

Only if we dare to offer it at the right moment.



Not to Target; but still safe.

Overall Harm reduced significantly.

Conclusions

- HCL therapy broke the cycle of DKA for people living with diabetes once seen as "non-engaging"
- Every closed loop opened new doors—to trust, stability, and safety
 - Not every door is revolving—some just need the right key

Take Away



Audit your current recurrent DKA
DKA cohort



Be bold in your referrals



Think HCL earlier in the care
pathway



Stop the cycle



Leverage discharge as a teachable
teachable moment



Think Why Not?

Thank You



Questions?

Email: ashley.mehnert@nhs.net