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1 Backgrounds and aims

The rise in Type 1 diabetes (T1D) globally has intensified the need for effective diabetes management. Automated insulin delivery (AID) technologies have advanced in recent years, but most focus on patient self-management. Healthcare Providers (HCP) often do not interact with AID data or combine it with other virtual biomarkers and behavior therapy. This study assesses AID's impact on glycemic control for those under continuous multidisciplinary team care using a hybrid model, versus traditional self-care with only physical interaction.

Overview of the GluCare Hybrid Journey

The GluCare.health Hybrid Journey represents an innovative approach in diabetes management by integrating digital health tools with traditional in-person care. This model utilizes wearable devices to continuously monitor patients' vital signs and glucose levels, enabling real-time data analysis.

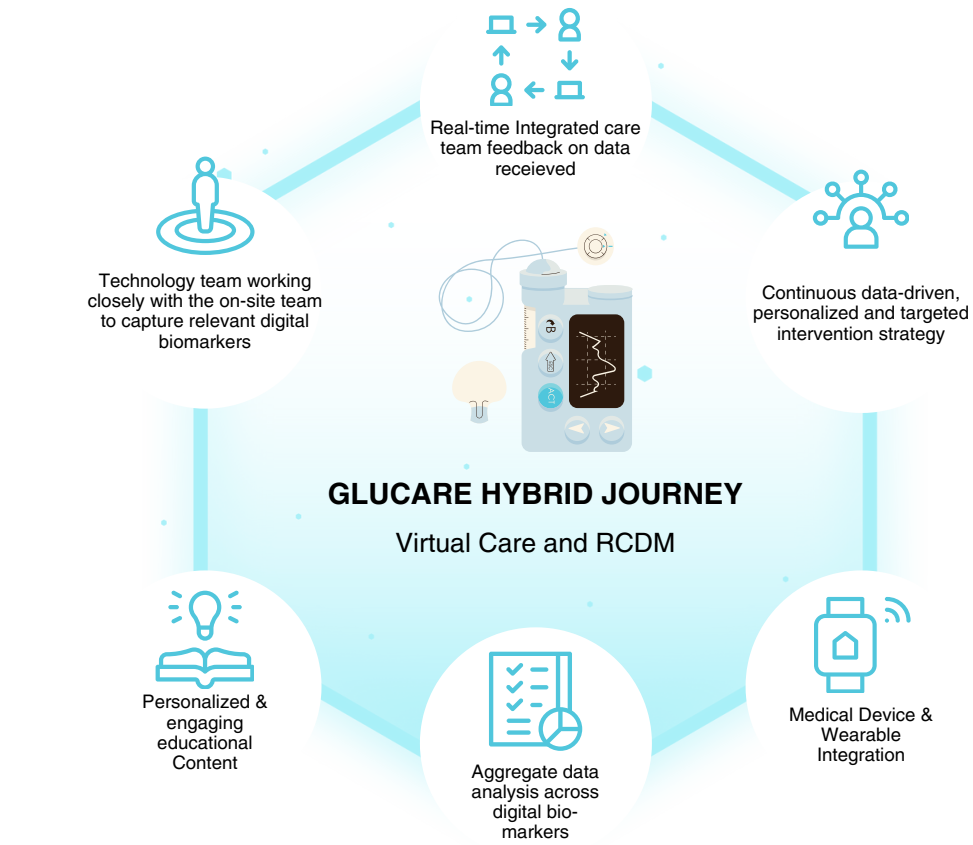
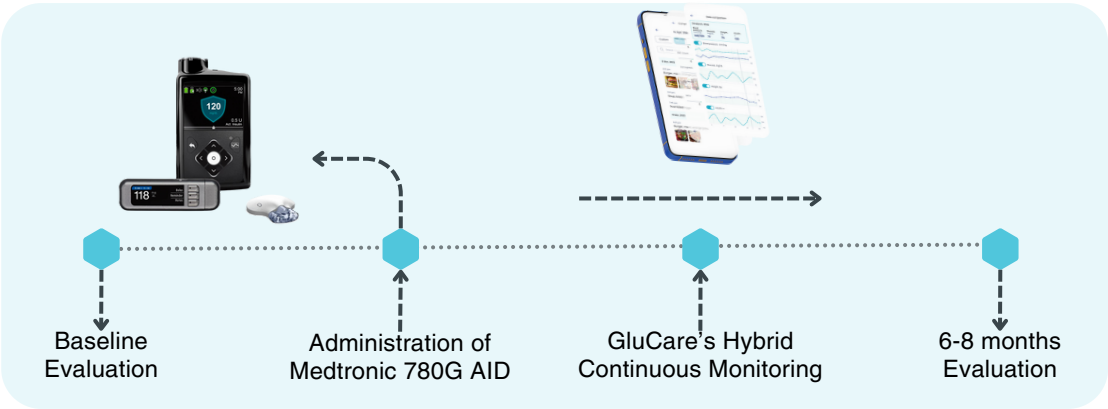


Figure 1: Overview of the GluCare.Health Hybrid Model of Care

2 Methodology

A retrospective observational study at GluCare Health (UAE) focused on 8 T1D patients who started using the Medtronic 780G AID with the GluCare hybrid care model (1) over 6-8 months. Education and training sessions ensured regular monitoring, and patients engaged 5-7 times more than standard care.



3 Results

Improvements in Glycemic Control

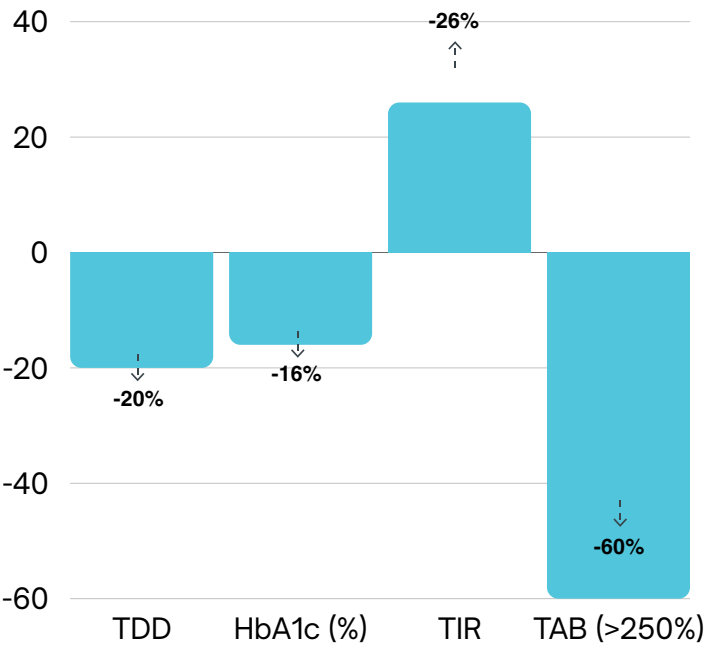


Figure 2: Glycemic Improvements Parameters

Significant glycemic improvements include a 20% decrease in insulin needs, a 16% reduction in HbA1c, a 26% increase in Time in Range (TIR), and a 60% reduction in high blood sugar episodes, indicating enhanced diabetes management.

Improvements in Clinical Parameters

The patients, with an average age of 26.8 years, saw significant improvements in glycemic control post-insulin pump installation, including a reduction in HbA1c (8.04% to 6.75%, MD -1.72 ± 1.05), an increase in time in range (from 59.17% to 74.75%, MD +15.58 ± 16.53), and a decrease in insulin requirements (MD -8.91 ± 19.35 units). Compared to existing literature, AID usage alone led to a 0.5 reduction in HbA1c (HbA1c: 7.5%) and a 5.0% increase in TIR (2).

Table 1: Improvements in clinical parameters in T1D after the use of Insulin Pumps along side hybrid care

	14 days before the installation	14 days at 6-8 months	Mean Difference	P-value
HbA1c (%)	8.04 ± 1.33	6.75 ± 0.64	- 1.28 ± 1.07	0.002*
Time in Range (%)	59.17 ± 19.49	74.75 ± 11.36	+ 15.58 ± 16.53	0.008*
Average glucose (mg/dL)	164.58 ± 32.9	145.33 ± 21.9	- 19.25 ± 25.8	0.026*
Time above range > 180 (%)	25.42 ± 14.6	17.00 ± 8.4	- 8.41 ± 12.29	0.037*
Time above range > 250 (%)	13.22 ± 7.71	5.27 ± 6.24	- 7.95 ± 5.86	0.001*
Time below range < 70 (%)	2.55 ± 3.61	2.91 ± 3.33	+0.364 ± 4.5	0.798
Time below range < 54 (%)	0.708 ± 0.75	0.75 ± 1.13	- 0.04 ± 0.91	0.878

4 Conclusions

These findings highlight improved outcomes when HCPs actively engage and monitor AID data. A hybrid care model (physical + digital) facilitates increased engagement and ongoing diabetes management post insulin pump installation.

1. Your wellness journey: Glucare health. GluCare. (2023, July 4). <https://glucare.health/how-it-works/>
2. Carlson, A. L., Sherr, J. L., Shulman, D. I., Garg, S. K., Pop-Busui, R., Bode, B. W., ... & MiniMed™ AHCL Study Group. (2022). Safety and glycemic outcomes during the MiniMed™ advanced hybrid closed-loop system pivotal trial in adolescents and adults with type 1 diabetes. Diabetes Technology & Therapeutics, 24(3), 178-189. ©Copyright © 2024, Joudy Kattan , Judy@glucare.health