HEDIS® Glycemic Goals Achieved by Control-IQ Technology Users Across All Payer Types

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Background

The t:slim X2 insulin pump with Control-IQ technology is an advanced hybrid closed-loop system. This analysis evaluated glycemic outcomes in Control-IQ technology users by payer type using Health Effectiveness Data and Information Set (HEDIS®) thresholds. The National Committee for Quality Assurance's (NCQA) HEDIS is used by >90% of health plans to measure performance and includes a Comprehensive Diabetes Care metric to assess A1c control (<8.0%) and poor control (>9.0%).[1] Additionally, the Centers for Medicare & Medicaid Services uses this HEDIS metric in their Star Ratings program to measure and rate Medicare plans on quality. Glucose management indicator (GMI) is a recognized surrogate for A1c when sufficient data is provided (≥14 days, ≥70% continuous glucose monitor [CGM] use).[2]

Methods

We retrospectively analyzed glycemic data for individuals with type 1 diabetes in the U.S. from 1/1/20 to 3/4/23 who used Control-IQ technology for ≥1 year (with ≥70% of CGM use in the final three months) and had a recorded baseline A1c prior to Control-IQ technology initiation. Results were stratified by payer type, prior therapy, and baseline A1c. GMI was calculated for the last three months and compared to baseline A1c.

Results

This analysis included 20,319 users, with 42% (n= 8,493) on multiple daily injections (MDI) and 58% (n=11,826) on pump therapy at baseline. The majority of users were 18–64 years of age and female; however, users with Medicaid were younger while users with Medicare were older (Table 1). Control-IQ technology use significantly improved glycemic outcomes and mean HEDIS (GMI) thresholds were achieved for all payer types (Figures 1a, 1b). Prior MDI users had a two-fold improvement from A1c to GMI than individuals with prior pump use. Prior MDI users with poor A1c control at baseline (i.e., A1c ≥9) had the greatest improvement (-3.06% difference [10.62% mean baseline A1c to 7.57% GMI], p<0.001), meeting the quality threshold for A1c control (Figures 1c, 1d).

Conclusion

Control-IQ technology use improved HEDIS A1c (GMI) outcomes across all payer types, with the largest glycemic improvement seen in those with the highest A1c at baseline, and for prior MDI users.

TABLE 1

Age and Gender Distribution by Prior Therapy and Payer Type

Prior Therapy	Category	N	Age				% Female
			Mean (SD)	<18	18 - 64	≥65	
MDI	All Users	8,493	33.92 (19.61)	28.46%	62.56%	8.98%	53.19%
Prior Pump Use	All Users	11,826	45.90 (18.65)	7.22%	73.16%	19.62%	57.48%
By Top 3 Payer Types*							
MDI	Medicare	757	62.06 (16.58)	3.04%	32.10%	64.86%	53.24%
	Medicaid	1,388	24.80 (15.01)	45.89%	53.31%	0.79%	56.34%
	Commercial	5,356	32.17 (17.36)	27.43%	69.62%	2.95%	52.31%
Prior Pump Use	Medicare	1,885	67.49 (11.50)	0.37%	19.20%	80.42%	57.08%
	Medicaid	630	31.03 (16.07)	26.19%	71.11%	2.70%	61.75%
	Commercial	7,822	41.60 (15.88)	7.38%	87.23%	5.40%	57.18%

*Based on users with available payer type information.

FIGURE 1

Glycemic Performance†‡

Figure 1a: Prior MDI Users by Payer Type*

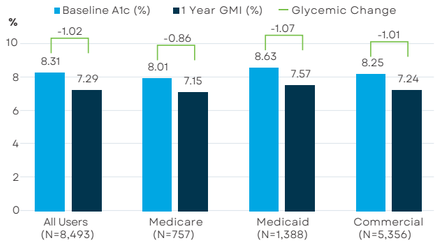


Figure 1b: Prior Pump Users by Payer Type*

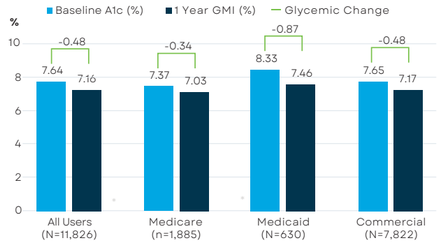


Figure 1c: Prior MDI Users by Baseline A1c Risk Levels

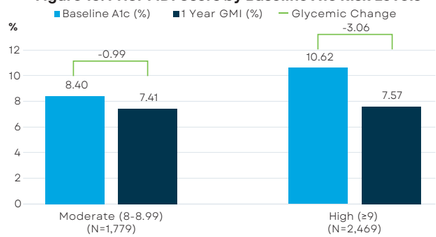
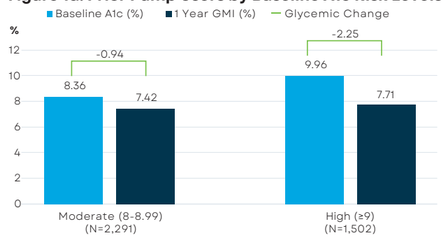


Figure 1d: Prior Pump Users by Baseline A1c Risk Levels



*Based on users with available payer type information.

†GMI was calculated for the last three months of the one-year period (Day 274-364), using the formula: GML = 3.31 + 0.02392 x [mean glucose in mg/dL], and compared to baseline A1c.

‡ Paired t-test; all p-value <0.001.

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