Risk Factors for CGM Non-Use

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Background

Continuous glucose monitor (CGM) use in Type 1 Diabetes improves glycemic outcomes and reduces hypoglycemia. CGM prescription at diagnosis and repeated discussion at clinic visits has increased the percentage of patients with active prescriptions. However, barriers remain to consistent use of the CGM over 70% of the time and literature shows that disparities exist between racial/ethnic groups regarding CGM use. We aim to identify risk factors for CGM non-use to inform future interventions.

Objectives/ Aims

Increase the percentage of patients with Type 1 diabetes who have a CGM and who consistently use their CGM ≥70% of the time to above 90%, and maintain this, by January 31, 2025.
Identify demographic risk factors for CGM non-use and decrease differences between groups by targeting interventions to these risk factors.

Future State Design

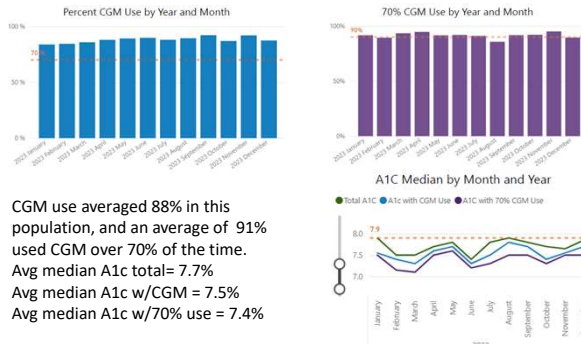T1D Exchange: CGM Use Key Driver Diagram
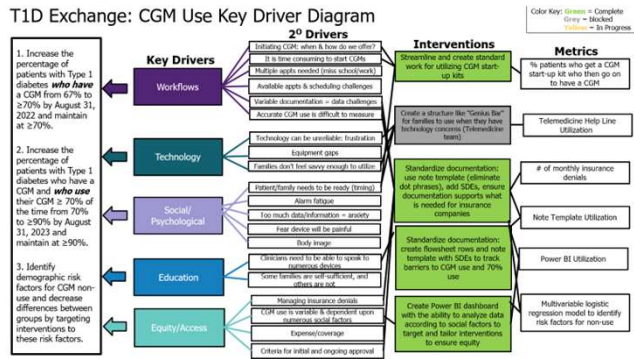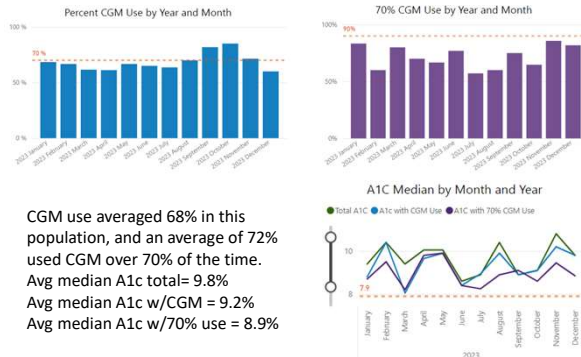
Implementation
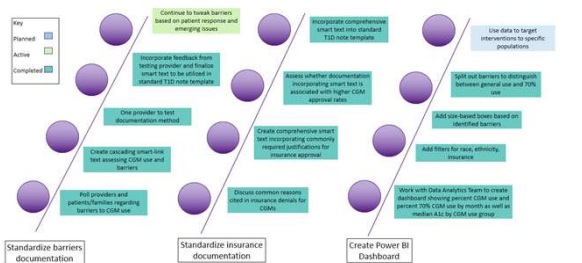
Methods

From January 1 to December 31, 2023, data were collected on patient demographics, CGM use and wear time at each outpatient diabetes visit (n=961). Descriptive statistics, bivariate analyses, and multivariable logistic regression model with backward elimination were performed to identify potential risk factors for CGM non-use. In the multivariable model, we adjusted for potential confounders, including patient sex, age, race/ethnicity, language, insurance status, presence of a complex chronic condition, visit department, visit provider, insulin regimen, MyChart activation, whether they sent MyChart message(s), appointment completion rate ≥75%, and the Child Opportunity Index (COI). The COI, based on the zip code of residence, is a composite measure of neighborhood opportunity for children, comprising 44 indicators across three domains (education, health and environment, and social and economic) and 14 subdomains. (See diversitydatakids.org)
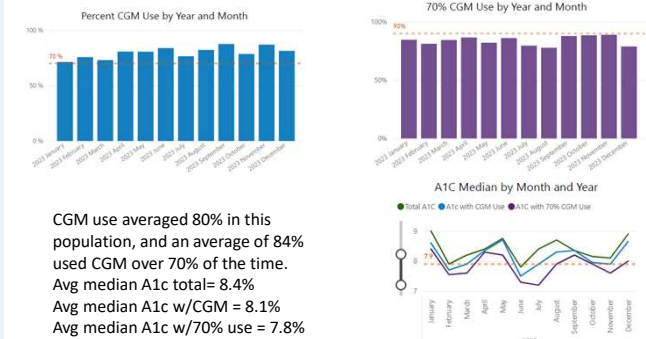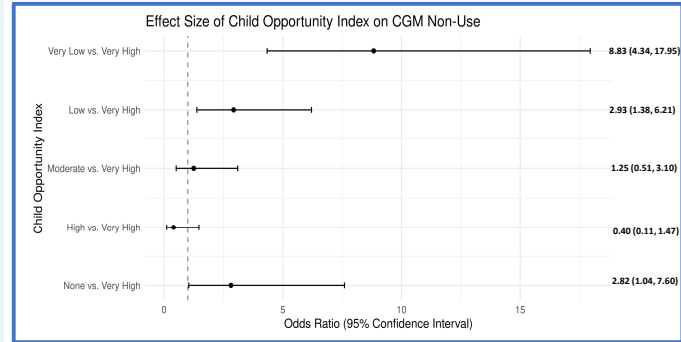
Results – Power BI Dashboard

All Patients Seen in 2023

CGM use averaged 88% in this population, and an average of 91% used CGM over 70% of the time.
Avg median A1c total= 7.7%
Avg median A1c w/CGM = 7.5%
Avg median A1c w/70% use = 7.4%

Patients Seen in 2023 – Filtered by Black Race

CGM use averaged 68% in this population, and an average of 72% used CGM over 70% of the time.
Avg median A1c total= 9.8%
Avg median A1c w/CGM = 9.2%
Avg median A1c w/70% use = 8.9%

Patients Seen in 2023- Filtered by Public Insurance Type

CGM use averaged 80% in this population, and an average of 84% used CGM over 70% of the time.
Avg median A1c total= 8.4%
Avg median A1c w/CGM = 8.1%
Avg median A1c w/70% use = 7.8%

Results – Risk Factor Identification

Effect Size of Child Opportunity Index on CGM Non-Use

Child Opportunity Index	Odds Ratio (95% CI)
Very Low vs. Very High	8.83 (4.34, 17.95)
Low vs. Very High	2.93 (1.38, 6.21)
Moderate vs. Very High	1.25 (0.51, 3.10)
High vs. Very High	0.40 (0.11, 1.47)
None vs. Very High	2.82 (1.04, 7.60)

After controlling for all factors in the multivariable analysis, patients with "Very Low" and "Low" Child Opportunity Index had significantly higher odds of CGM non-use compared to patients with "Very High" COI.

Conclusions / Next Steps

Despite widespread prescriptions of CGM, there are still differences in CGM use among groups. Children with "Very Low" and "Low" COI are significantly less likely to use their CGMs consistently. Future interventions, such as a mobile health van with technology support, will be targeted to this population and others with low CGM usage.

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