Improving Glycemic Management in Patients with Type 1 Diabetes through Time in Range Patient Education

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Background / Objective

- The American Diabetes Association (ADA) guidelines for type 1 diabetes (T1D) recommend time in range (TIR) ≥70% (blood sugars between 70-180 mg/dL) and less than 4% hypoglycemia (blood sugars <70 mg/dL)
- Optimizing TIR reduces microvascular complications associated with diabetes
- TIR is an important tool in diabetes self-management as hemoglobin A1c (HbA1c) does not tell the whole story of blood sugar excursions
- Short-term project aim to improve patient knowledge of TIR among patients with T1D using a continuous glucose monitor (CGM) from 0% to 95% at quarterly visits
- Long-term aim to increase patients' TIR

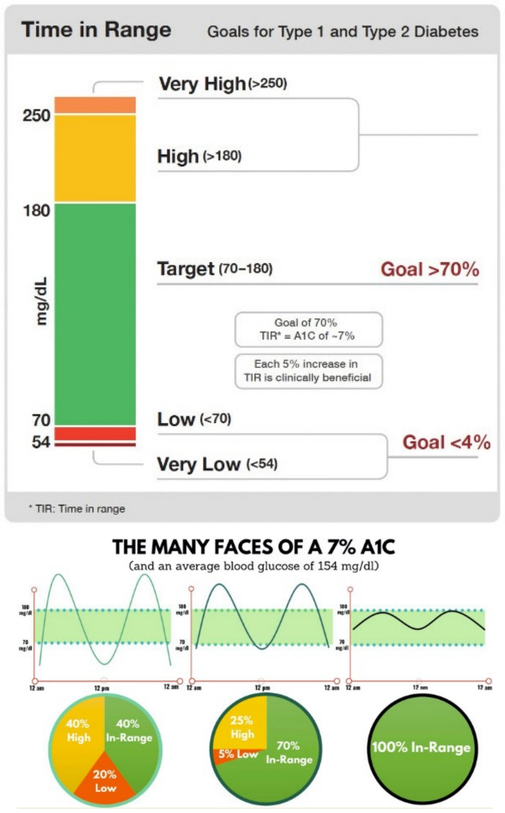

Figure 1: Graphs depicting time in range goals and education *(from ADA and diaTribe TIR Coalition)*

Methods

- PDSA cycle #1: QI team identified knowledge gap in patient understanding of TIR by asking individual patients and families at clinic visits and recording responses.
- PDSA cycle #2: Created an educational handout for patients, electronic health record (EHR) smart phrase about TIR and added clinic flowsheet questions to standardize TIR education.
- Initially tested with QI team, then scaled to entire division.
- Measured: 1) providers discussing TIR and 2) patient/family knowledge about TIR and goals at quarterly visits.

Results

- Initial knowledge gap related to TIR identified in January 2023
- Pilot implementation of interventions (EHR flowsheet questions, educational materials) began with two providers in February 2023 and expanded to an additional provider in each March and April 2023
- Patients asked 3 questions: definition/target range, goal for in range, and goal for hypoglycemia
- Scaled to full implementation across division in June 2023
- Since intervention, the proportion of patients asked about TIR increased from 0% to 79.7%

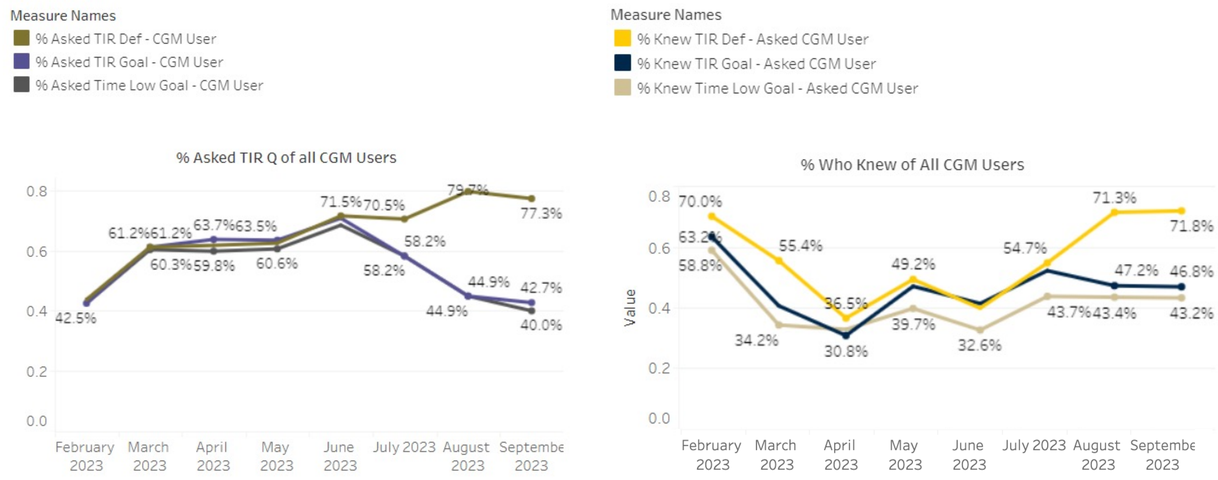

Figure 2: Change in proportion of patients asked questions/knew about time in range (TIR) and goals during clinic visit

Conclusions

- Implementing standardized questions in EHR flowsheet increased number of patients with whom our diabetes team discussed TIR goals during clinic visits. Patient knowledge increased as well.
- We have yet to see an effect on the proportion of patients meeting TIR goals, but we expect with time this will improve with further education.
- Increased adoption of diabetes technology, particularly automated insulin delivery systems, is also expected to improve the number of patients meeting TIR goals.
- Further work needs to be done to reach remaining patients and assess if TIR goals are being met by patients.

Contacts

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