Diabetes Resource, Education, and Management Support (DREAMS): Updates for 2020 to 2024 Cohorts

David Hansen, MD, MPH; Jerusha Owusu-Barnie, MS; Shemrine Mark, MD; Ann-Marie Hudy, MSN, RN; Cortney Parry, BSN, RN; Eden Dodd, MSN, RN; Ashley McDuffee, PsyD; Kathryn Lewis, RD; Karen Kemmis, PT, DPT, RN; Jessica Reis, MSN, RN; Michael Casey, BSN, RN; Jessica Deets, BSN, RN; Joseph Erardi, BS; Sandra Wiley, MHA, RN; Roberto Izquierdo, MD

Objectives

Diabetic ketoacidosis (DKA) remains a major cause of morbidity among youth with type 1 diabetes (T1D) due to poor glycemic management and barriers to diabetes self-management, which can result in recurrent hospitalizations. We evaluated the impact of a structured multidisciplinary support program on hemoglobin A1C (HbA1c) and DKA-related outcomes among youth at high risk for DKA admissions.

Methods

This quality improvement initiative was conducted through the T1D Exchange Quality Improvement Collaborative. Youth under 20 years with recurrent DKA or suboptimal HbA1c participated in a multidisciplinary program consisting of 4–6 longitudinal visits. The intervention was refined using Plan-Do-Study-Act cycles. Pre- and post-intervention outcomes included changes in HbA1c and DKA admissions. Participants who completed the program were compared to a group that discontinued the program (non-completers) and a similar group of eligible non-participants (controls).

Results

	All (cohorts 1-4)	Completers	Non-completers
N	43	29	14
Age, mean (at program start)	15	14	16
Sex			
Female n (%)	25 (58.1%)	16 (55.2%)	9 (64.2%)
Male n (%)	18 (41.9%)	13 (44.8%)	5 (35.7%)
Race/Ethnicity			
Non-Hispanic White n (%)	27 (62.8%)	18 (62.1%)	9 (64.2%)
Non-Hispanic Black/African American n (%)	11 (25.6%)	7 (24.1%)	4 (28.6%)
Hispanic n (%)	2 (4.7%)	2 (6.9%)	0 (0.0%)
Other n (%)	3 (7.0%)	2 (6.9%)	1 (7.1%)
Insurance			
Private n (%)	6 (14.0%)	4 (13.8%)	2 (14.3%)
Public n (%)	37 (86.0%)	25 (86.2%)	12 (85.7%)
Diabetes Technology use at program start n (%)			
Prior	41 (95.3%)	27 (93.1%)	14 (100.0%)
None	2 (4.7%)	2 (6.9%)	0 (0.0%)
CGM	41 (95.3%)	26 (89.7%)	13 (92.9%)
Pump	37 (86.0%)	22 (75.9%)	12 (85.7%)

A1c Change Pre/Post by Group

Group	N	Mean Pre-A1c	Mean Post-A1c	Mean Change	Wilcoxon Signed-Rank Test	p
Dreams Complete	29	12.53	10.78	-1.75	85.5	0.0045
Dreams Partial	14	13.56	11.31	-2.26	23	0.0687
All DREAMS	43	12.87	10.95	-1.92	188.5	0.0006
Non-Dreams	29	11.01	10.27	-0.73	138	0.0875

DKA admissions Pre/Post (DREAMS only)

Population	N	Total Pre-DKA Admissions	Total Post-DKA Admissions	Mean Change	Wilcoxon signed-rank test	p
DREAMS patients with paired DKA points	43	77	54	0.53	311.5	0.0402

Summary

Forty-three participants enrolled in the intervention group were compared with 29 controls. Baseline characteristics were similar. Among intervention participants, mean HbA1c decreased from 12.87% to 10.95% (mean change (MD) −1.92%, p =0.0003). Program completers HbA1c improved from 12.53% to 10.78% (MD−1.75%, p=0.0015), while non-completers HbA1c showed a nonsignificant reduction from 13.56% to 11.31% (MD−2.25%, p=0.0597). Controls had a smaller HbA1c reduction (11.01% to 10.27%; MD-0.73%, p=0.0976). DKA admissions among intervention participants decreased from 77 to 54 (p=0.0402).

Limitations

Comparisons are limited by small sample size.

Conclusion

A structured multidisciplinary support program was associated with improved HbA1c and fewer DKA admissions among youth with T1D. Targeted, longitudinal team-based interventions may help address barriers to self-management and improve outcomes. Further evaluation is needed to assess sustainability and generalizability.

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