T1D Exchange

HEAL Advisory Committee Meeting

1/19/23

Welcome and Centering

T1D Exchange (T1DX) Health Equity Advancement Lab (HEAL)
Meeting Agenda

January 19, 2023, 1-2:30 pm EST, Zoom

Participants:

Ananta Addala, Todd Alonso, Ashley Butler, Carla Demeterco, Osagie Ebekozien, Colette Edwards, Eddie Hammond, Holly Hardison, Kristopher Leeper, Shideh Majidi, Faisal Malik, Makaila Manukyan, Ann Mungmode, Margarita Ochoa-Maya, Ori Odugbesan, Gary Puckrein, Nicole Rioles, Janine Sanchez, Devin Steenkamp, Tenishia Thurman

Agenda:

Time	Item	Facilitator
1:00-1:10 pm 10′	**Welcome** • Welcome • Centering	 Dr. Osagie Ebekozien Ann Mungmode
1:10-1:30 pm 20′	**Best Practices in Health Equity example sharing**	Dr. Margarita Ochoa-Maya
1:30-2:15 pm 45′	**T1DX-QI HEAL Annual Review** • 2022 in review • 2023 plans	T1DX staff
2:15-2:30 pm 20′	**Updates and Close Out** • Operationalizing racial equity manuscript update • Summary of next steps • Next meeting 4/20, 1 PM EST	T1DX staff

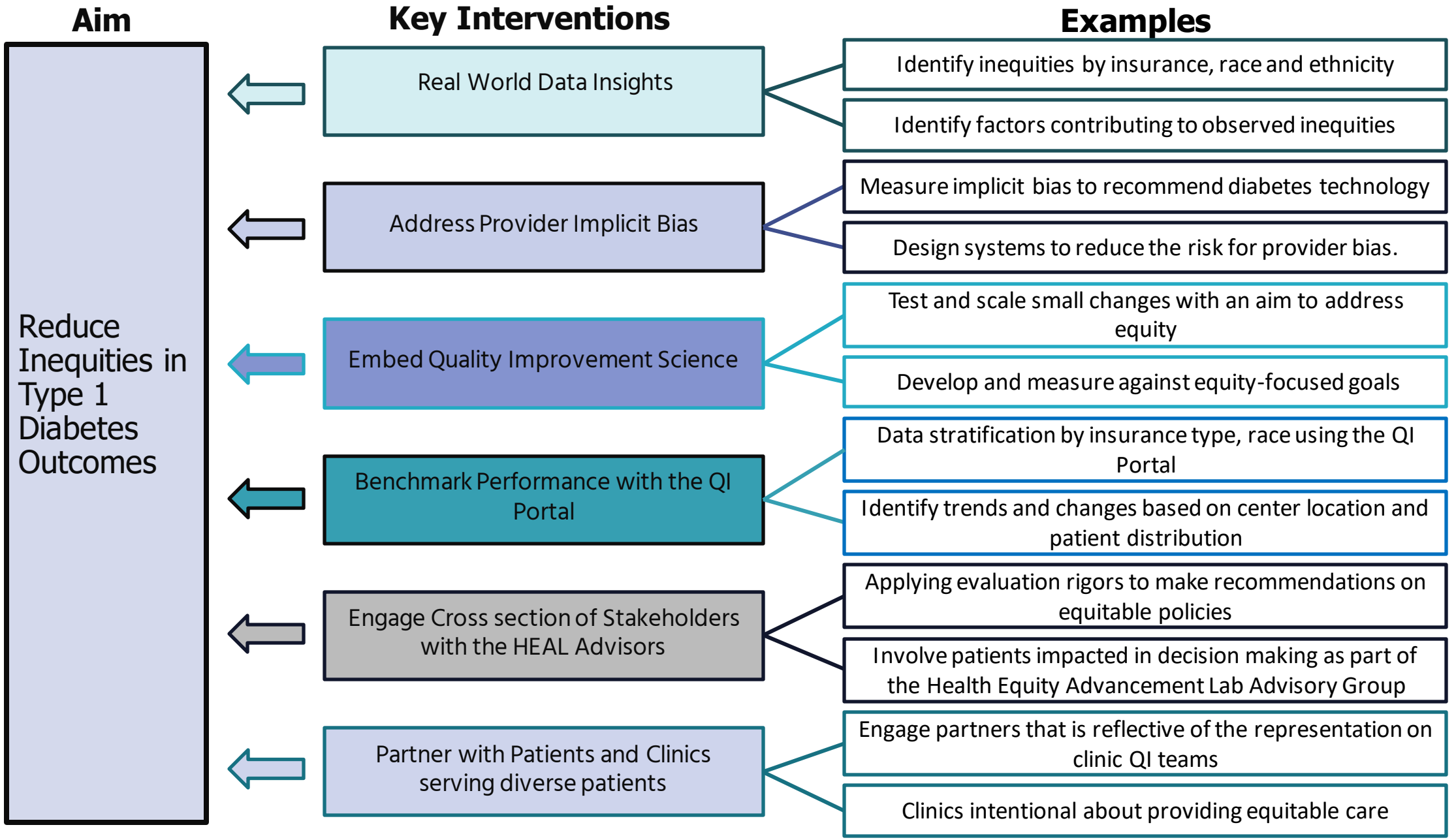
Best Practice in Health Equity

Dr. Margarita Ochoa-Maya

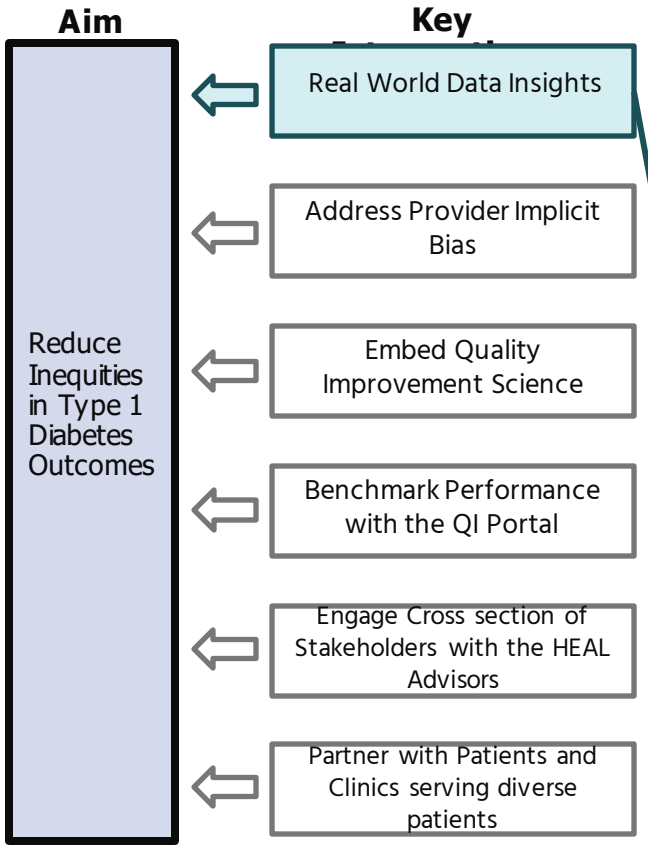
HEAL Program:
2022 Review and 2023 Future

T1D Exchange

Key Driver Diagram: T1D Exchange HEAL Program to Address Health Inequities



2022 Review: Real World Data Insights



Contributions to the Literature

The Journal of Clinical Endocrinology & Metabolism, 2022, **107**, 1948–1955
https://doi.org/10.1210/clinem/dgac158
Advance access publication 30 March 2022
Clinical Research Article

Trends in Type 1 Diabetic Ketoacidosis During COVID-19 Surges at 7 US Centers: Highest Burden on non-Hispanic Black Patients

Andrew R. Lavik,[1,*] Osagie Ebekozien,[2,*] Nudrat Noor,[2] G. Todd Alonso,[3] Sarit Polsky,[3] Scott M. Blackman,[4] Justin Chen,[5] Sarah D. Corathers,[1] Carla Demeterco-Berggren,[6] Mary Pat Gallagher,[7] Margaret Greenfield,[5] Ashley Garrity,[8] Saketh Rompicherla,[2] Robert Rapaport,[2] and Nana-Hawa Yayah Jones[1]

Inequities in Health Outcomes in Children and Adults With Type 1 Diabetes: Data From the T1D Exchange Quality Improvement Collaborative

Shideh Majidi,[1] Osagie Ebekozien,[2] Nudrat Noor,[2] Sarah K. Lyons,[3] Ryan McDonough,[4] Kajal Gandhi,[5] Roberto Izquierdo,[6] Carla Demeterco-Berggren,[7] Sarit Polsky,[1] Marina Basina,[8] Marisa Desimone,[6] Inas Thomas,[9] Nicole Rioles,[2] Jose Jimenez-Vega,[10] Faisal S. Malik,[11] Brian Miyazaki,[12] Anastasia Albanese-O'Neill,[13] and Nana-Hawa Yayah Jones,[14] on behalf of the T1D Exchange Quality Improvement Collaborative Study Group

Hybrid Closed-Loop Systems and Glycemic Outcomes in Children and Adults With Type 1 Diabetes: Real-World Evidence From a U.S.-Based Multicenter Collaborative

Nudrat Noor,[1,2a] Manmohan K. Kamboj,[3] Taylor Triolo,[4] Sarit Polsky,[4] Ryan J. McDonough,[5] Carla Demeterco-Berggren,[6] Laura Jacobsen,[7] Rona Sonabend,[8] Osagie Ebekozien,[1,9] and Daniel J. DeSalvo[8]

Diabetes Care 2022;45:e118–e119 | https://doi.org/10.2337/dc22-0329

Journal of Diabetes Science and Technology
OnlineFirst
© 2021 Diabetes Technology Society, Article Reuse Guidelines
https://doi.org/10.1177/19322968211049783

Original Article

Patient Demographics and Clinical Outcomes Among Type 1 Diabetes Patients Using Continuous Glucose Monitors: Data From T1D Exchange Real-World Observational Study

Daniel J. DeSalvo, MD[1], Nudrat Noor, PhD[2], Cicilyn Xie, BA[3], Sarah D. Corathers, MD[4], Shideh Majidi, MD[5], Ryan J. McDonough, DO[6], Sarit Polsky, MD, MPH[5], Roberto Izquierdo, MD[7], Nicole Rioles, MA[2], Ruth Weinstock, MD, PhD[7], Kathryn Obrynba, MD[8], Alissa Roberts, MD[9], Francesco Vendrame, MD, PhD[10], Janine Sanchez, MD[10], Osagie Ebekozien, MD, MPH[2,11], and for the T1DX-QI Collaborative

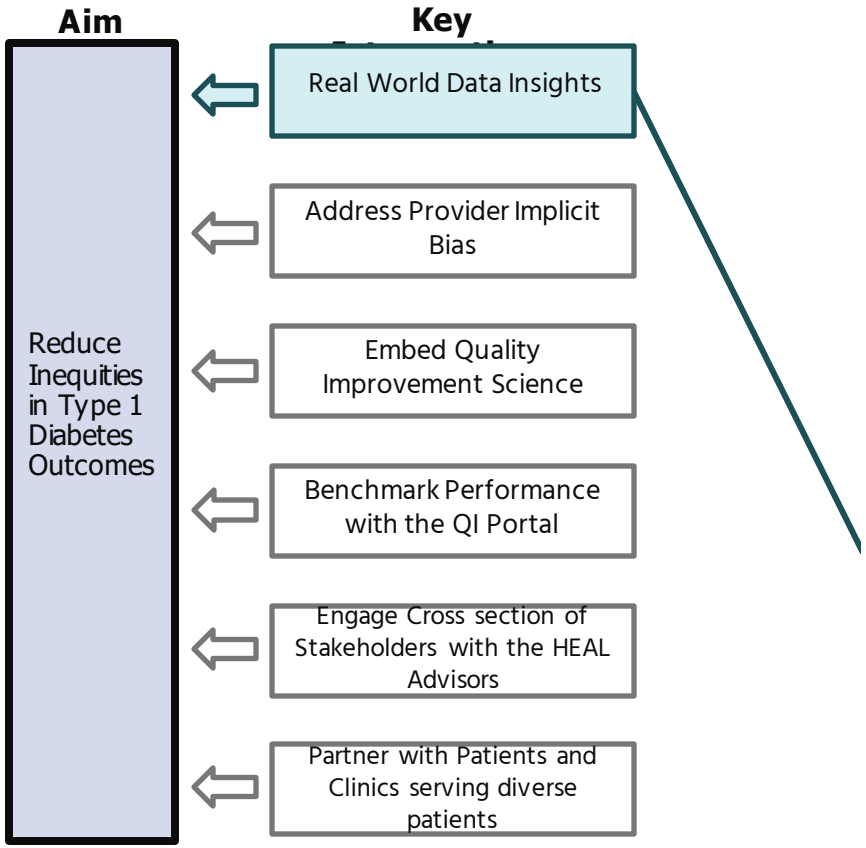
The Journal of Clinical Endocrinology & Metabolism, 2021, Vol. 106, No. 4, e1755–e1762
doi:10.1210/clinem/dgaa920
Clinical Research Article

Clinical Research Article

Inequities in Diabetic Ketoacidosis Among Patients With Type 1 Diabetes and COVID-19: Data From 52 US Clinical Centers

Osagie Ebekozien,[1,*] Shivani Agarwal,[2,*] Nudrat Noor,[1] Anastasia Albanese-O'Neill,[3] Jenise C. Wong,[4] Tossaporn Seeherunvong,[5] Janine Sanchez,[5] Daniel DeSalvo,[6] Sarah K. Lyons,[6] Shideh Majidi,[7] Jamie R. Wood,[8] Runa Acharya,[9] Grazia Aleppo,[10] Kathryn M. Sumpter,[11] Anna Cymbaluk,[6] Nirali A. Shah,[12] Michelle Van Name,[13] Lisa Cruz-Aviles,[13] Guy Todd Alonso,[7] Mary Pat Gallagher,[14] Srinath Sanda,[4] Alexis Jamie Feuer,[15] Kristina Cossen,[16] Nicole Rioles,[1] Nana-Hawa Yayah Jones,[17] Manmohan K. Kamboj,[18] and Irl B Hirsch[19]

2022 Review: Real World Data Insights



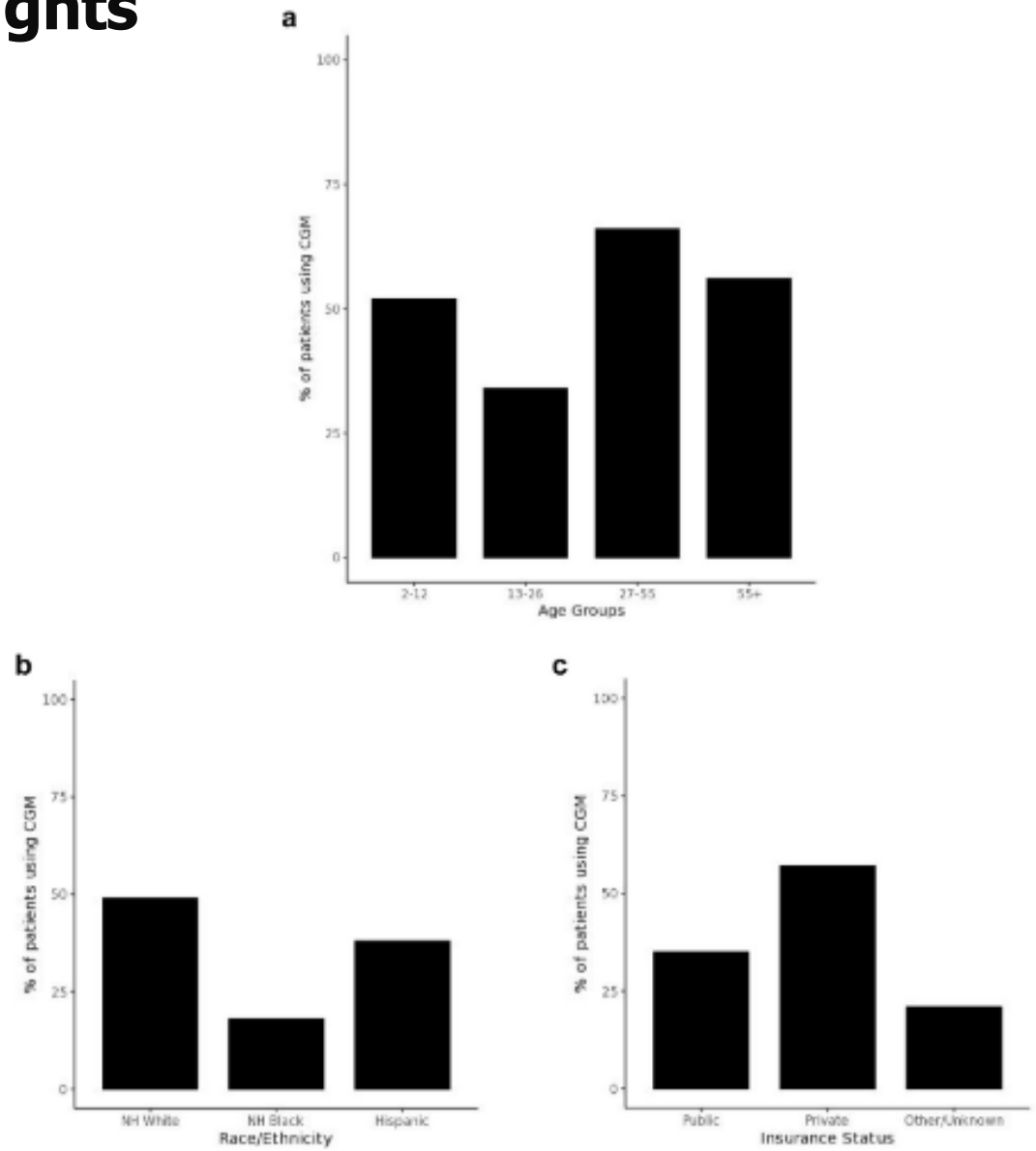
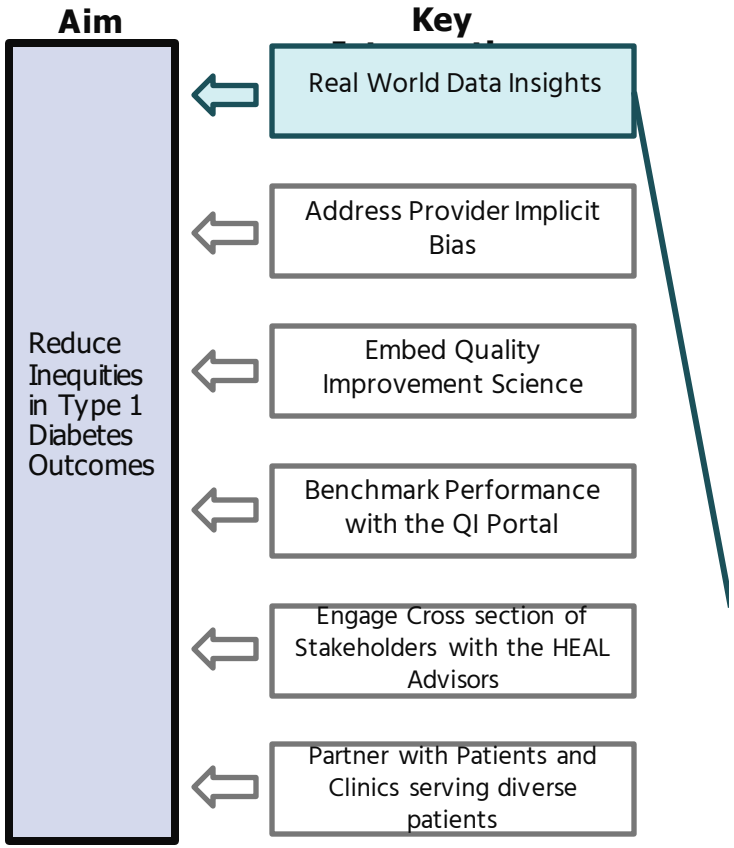


Figure 1. Patient attributes and CGM use. (a) CGM use by age in the T1DX-QI Collaborative. (b) CGM use by race/ethnicity in the T1DX-QI Collaborative. (c) CGM use by insurance status in the T1DX-QI Collaborative. Abbreviations: CGM, continuous glucose monitoring; T1DX-QI, T1D Exchange Quality Improvement.

DeSalvo, D. J., Noor, N., Xie, C., Corathers, S. D., Majidi, S., McDonough, R. J., Polsky, S., Izquierdo, R., Rioles, N., Weinstock, R., Obrynba, K., Roberts, A., Vendrame, F., Sanchez, J., & Ebekozien, O. Patient Demographics and Clinical Outcomes Among Type 1 Diabetes Patients Using Continuous Glucose Monitors: Data From T1D Exchange Real-World Observational Study. *Journal of Diabetes Science and Technology, 0(0), 19322968211049783. https://doi.org/10.1177/19322968211049783*

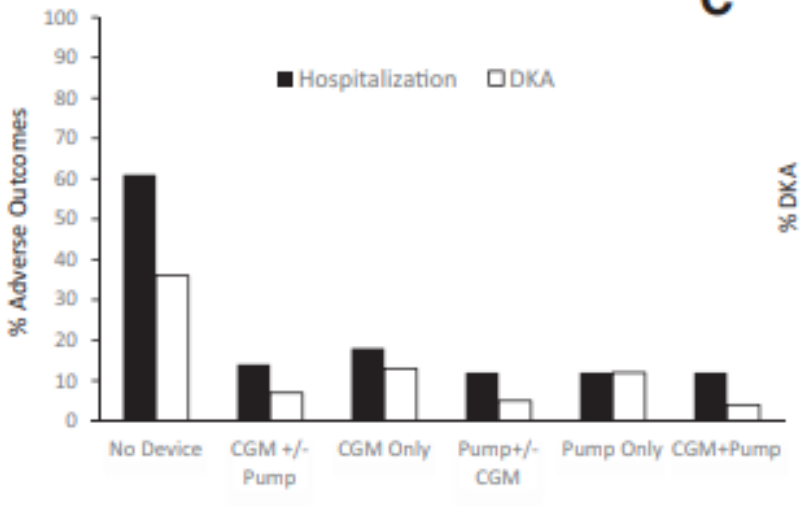
2022 Review: Real World Data Insights



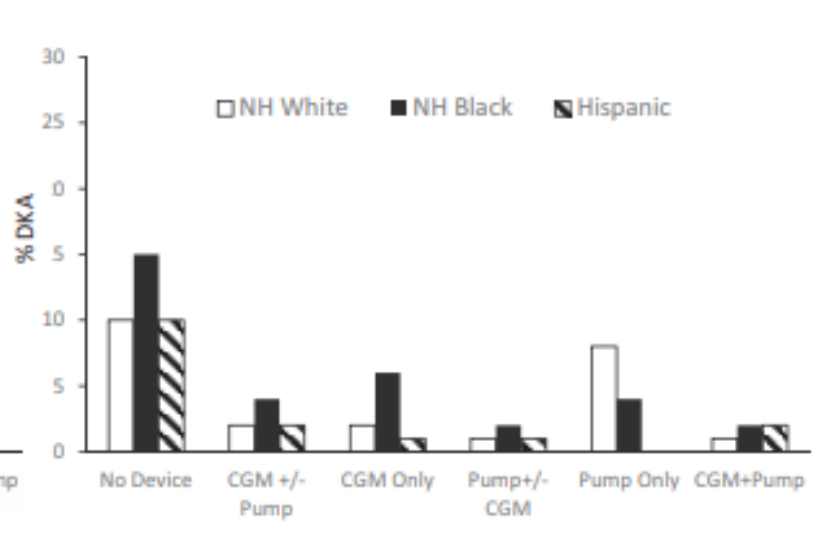
A

	No Device Use N=181	CGM Use N=241	Insulin Pump Use N=183	CGM + Insulin Pump Use N=158
Age–group—N(%)				
<19 years	93 (51)	97 (40)	81 (44)	67 (42)
≥19 years	88 (49)	144 (60)	102 (56)	91 (58)
Gender—N(%)				
-Female	90 (50)	130 (54)	104 (57)	92 (58)
Insurance Status—N(%)				
-Private	55 (30)	162 (67)	135 (74)	117 (74)
-Public	126 (70)	79 (33)	48 (26)	41 (26)
Race/ethnicity—N(%) [a,b,c]				
-NH White	59 (33)	162 (67)	136 (74)	119 (75)
-NH Black	59 (33)	24 (10)	14 (8)	9 (6)
-Hispanic	54 (30)	39 (16)	27 (15)	24 (15)
-Other	9 (4)	16 (7)	6 (3)	6 (4)
Mean A1C (%), SD	10.2 (2.8)	8.4 (2.8)	8.1 (2.8)	8.0 (2.7)
Outcomes—N(%)				
-Hospitalization [a,b,c]	110 (59)	34 (18)	22 (12)	19 (10)
-DKA [a,b,c]	65 (35)	18 (18)	10 (10)	7 (7)
-SH	7 (54)	3 (21)	2 (14)	2 (14)
-Death	4 (57)	1 (14)	1 (14)	1 (14)

B

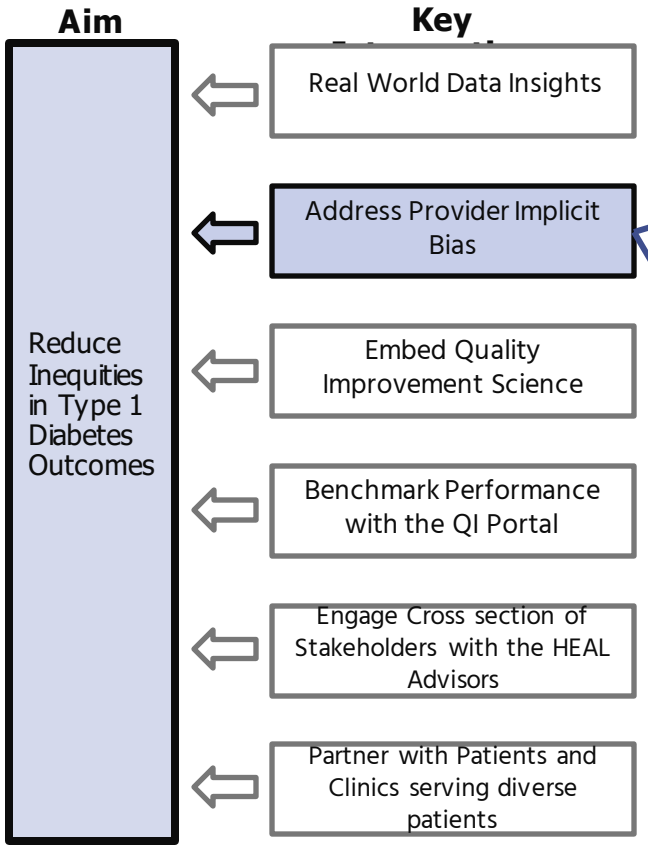


C



Noor, N., Ebekozien, O., Levin, L., Stone, S., Sparling, D. P., Rapaport, R., & Maahs, D. M. (2021). Diabetes Technology Use for Management of Type 1 Diabetes Is Associated With Fewer Adverse COVID-19 Outcomes: Findings From the T1D Exchange COVID-19 Surveillance Registry. *Diabetes Care, 44(8), e160-e162. https://doi.org/10.2337/dc21-0074*

2022 Review: Address Provider Implicit Bias



Implicit Bias Training

Over 200 clinic team members participated in a virtual health equity/implicit bias training and ongoing access to on-demand classes

DDT Publication

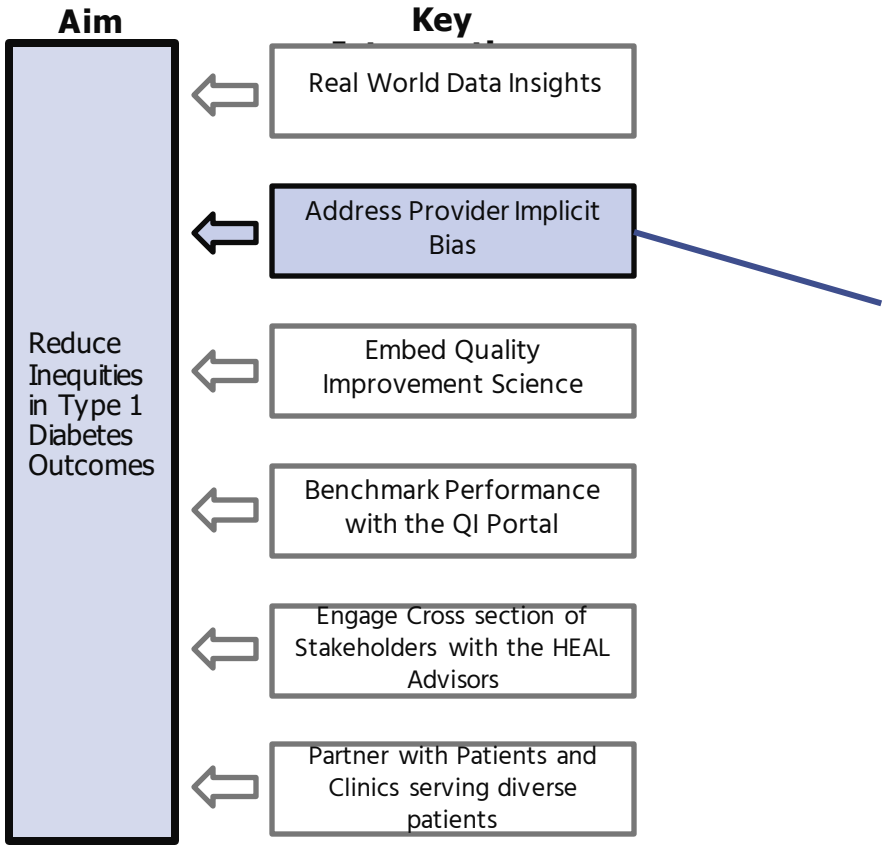
TABLE 3. UNADJUSTED ODDS RATIO FOR RACE/ETHNICITY-MEDIATED AND INSURANCE-MEDIATED PROVIDER BIAS

	Insurance bias	P	*Race/ethnicity bias*	P
Age	1.03 (0.99, 1.08)	0.06	0.99 (0.96, 1.04)	0.9
Race/ethnicity (NH White)	1.11 (0.48, 2.52)	0.8	0.76 (0.32, 1.79)	0.5
Clinic type (adult)	1.29 (0.56, 3.05)	0.5	1.09 (0.45, 2.53)	0.8
Practice years	**1.08 (1.02, 1.16)**	**0.02**[#]	1.00 (0.95, 1.06)	0.8
Recognize own bias (agree/strongly agree)	1.54 (0.66, 3.57)	0.3	**5.25 (1.83. 19.01)**	**0.004**[#]

[#]*P*-value <0.05.
Bold values indicate statistical significance.

Odugbesan, O., Addala, A., Nelson, G., Hopkins, R., Cossen, K., Schmitt, J., Indyk, J., Jones, N. Y., Agarwal, S., Rompicherl a, S., & Ebekozien, O. (2022). Implicit Racial-Ethnic and Insurance-Mediated Bias to Recommending Diabetes Technology: Insights from T1D Exchange Multicenter Pediatric and Adult Diabetes Provider Cohort. *Diabetes Technol Ther.* *https://doi.org/10.1089/dia.2022.0042*

2022 Review: Address Provider Implicit Bias



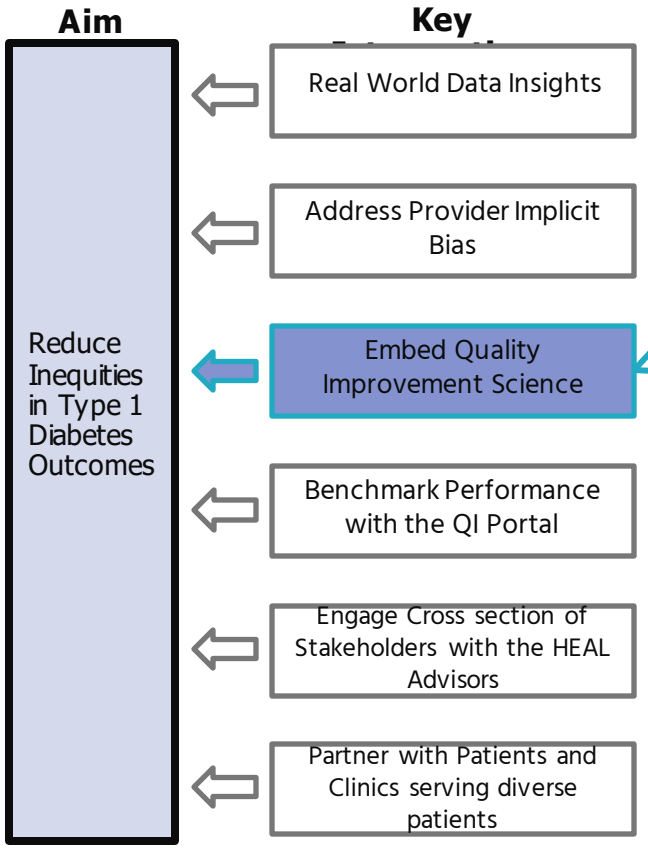
Submitted Grant Proposal –

HEAL Bundle to address advanced diabetes technology use among racial and ethnic minorities

- Provider health equity and implicit bias training
- Forced EMR prescription function to automatically recommend technology prescriptions using a rule-based algorithm
- Data benchmarking and QI coaching

Grant being reviewed for potential funding

2022 Review: Embed Quality Improvement Science



Presentations at ADDT

- Human factor in the use of diabetes technology
- Inequities in diabetes device use: T1D Exchange baseline trend analysis

Sharing insights at 2022 NCQA Health Innovations Summit

2022 Review: Benchmark Performance with the QI Portal

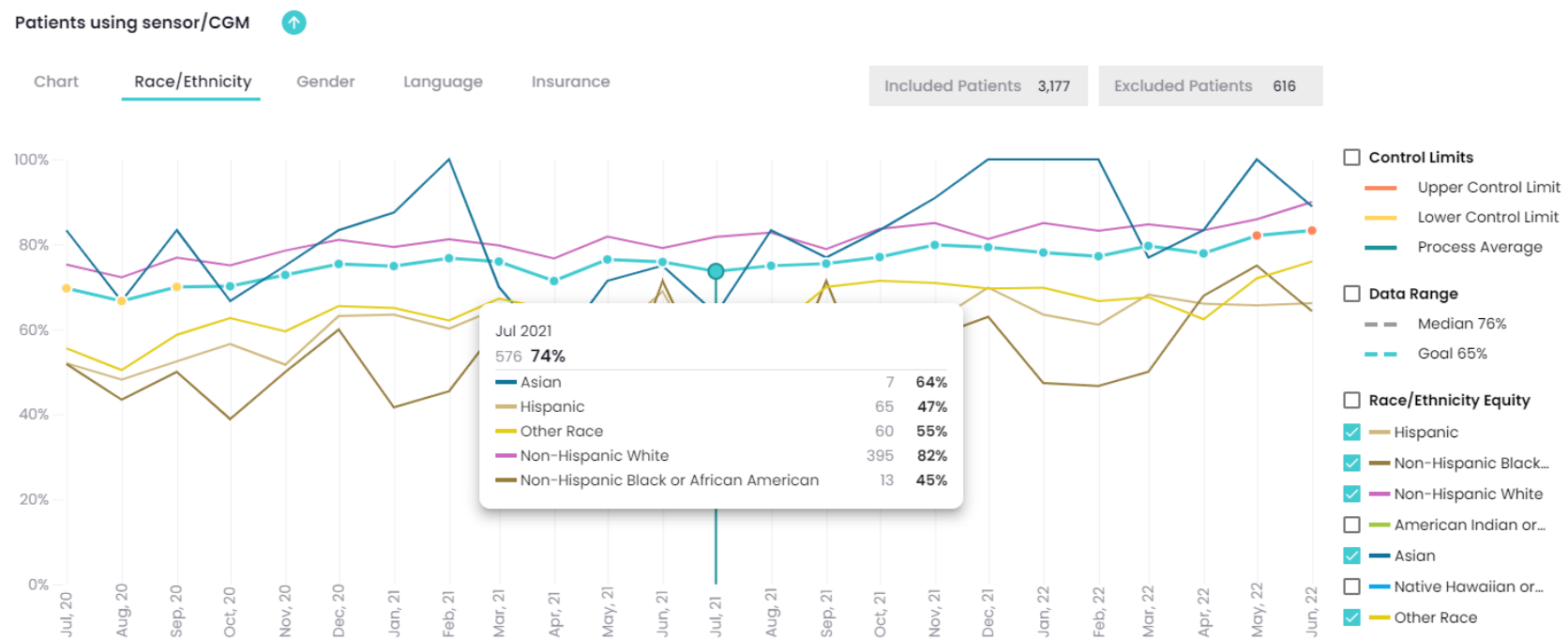
Aim

Reduce Inequities in Type 1 Diabetes Outcomes

Key

- Real World Data Insights
- Address Provider Implicit Bias
- Embed Quality Improvement Science
- **Benchmark Performance with the QI Portal**
- Engage Cross section of Stakeholders with the HEAL Advisors
- Partner with Patients and Clinics serving diverse patients

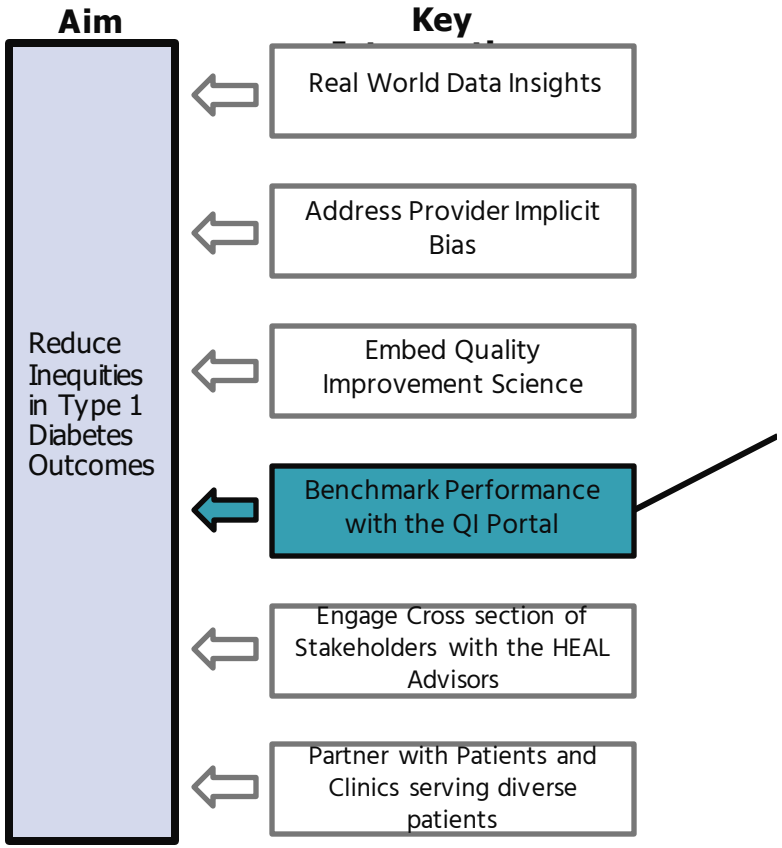
Addition and expansion of health equity capabilities



Addition of new measures

- Time in Range
- Social Determinants of Health

2022 Review: Benchmark Performance with the QI Portal

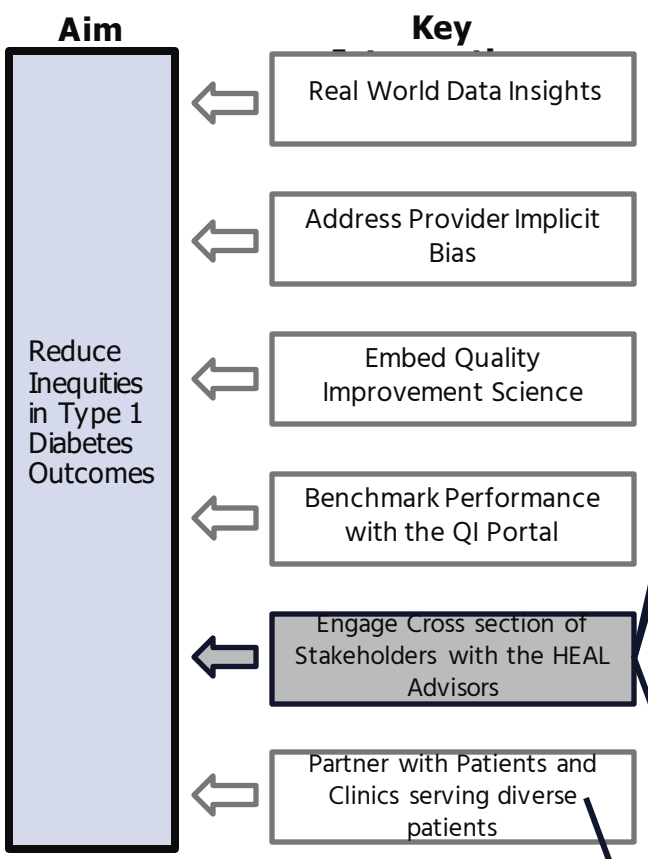


Published on QI Portal as a tool to advance health equity

Making Diabetes Electronic Medical Record Data Actionable: Promoting Benchmarking and Population Health Improvement Using the T1D Exchange Quality Improvement Portal

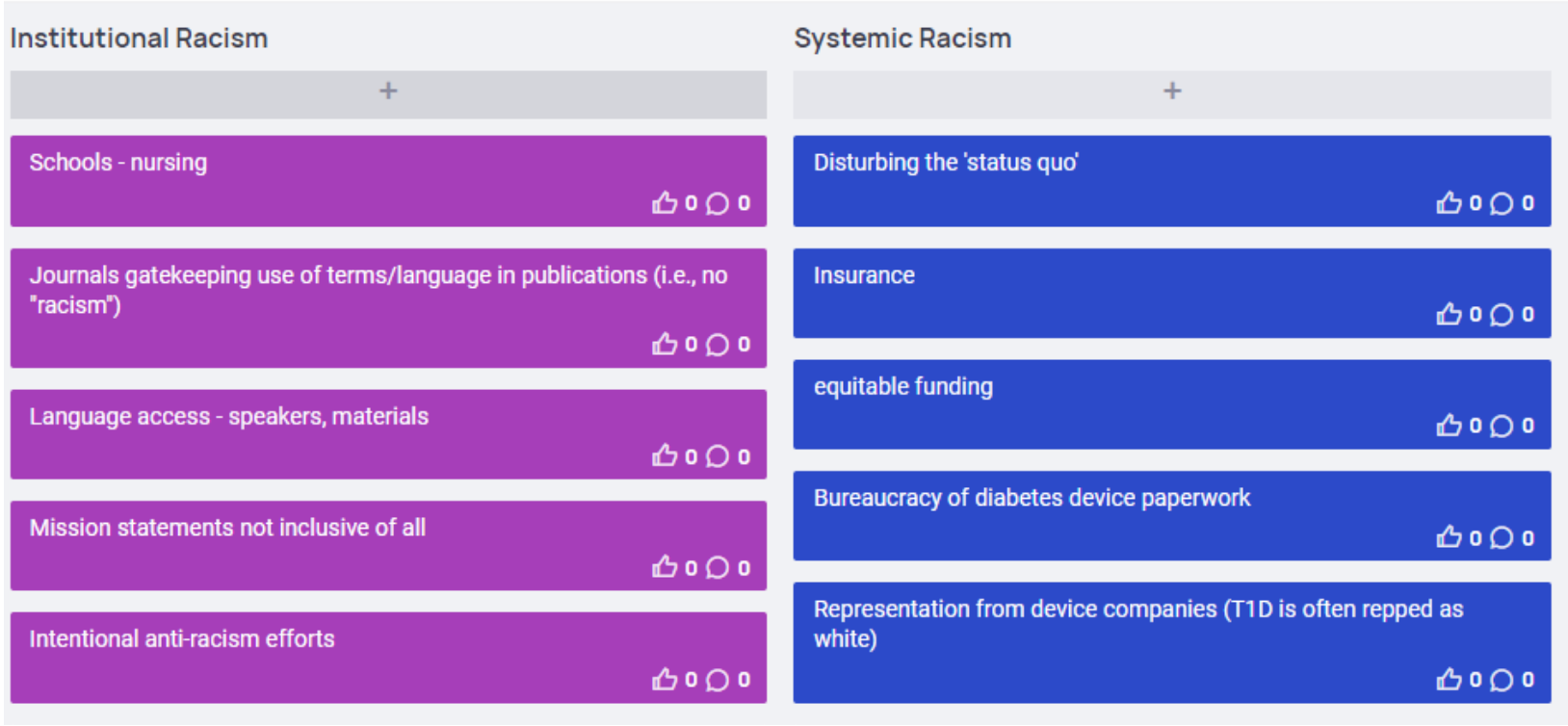
Ann Mungmode,[1] Nudrat Noor,[1] Ruth S. Weinstock,[2] Roberto Izquierdo,[2] Justin A. Indyk,[3] Daniel J. DeSalvo,[4] Sarah Corathers,[5] Carla Demeterco-Berggen,[6] Susan Hsieh,[7] Laura M. Jacobsen,[8] Allison Mekhoubad,[9] Halis Kaan Akturk,[10] Anton Wirsch,[1] Mary Lauren Scott,[11] Lily C. Chao,[12] Brian Miyazaki,[12] Faisal S. Malik,[13] Osagie Ebekozien,[1,14] Mark Clements,[15*] and G. Todd Alonso[10*]*

2022 Review: Engage Cross-section of Stakeholders with the HEAL Advisors



Convened group quarterly for one year

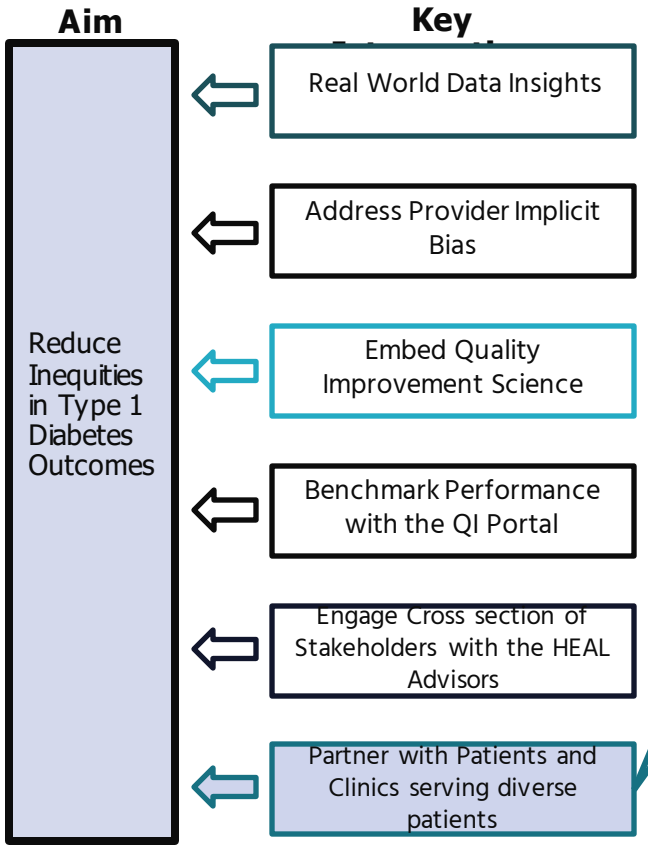
Developing manuscript on operationalizing institutional equity in T1D care



Surveyed 50 T1DX-QI centers on racial equity strategies and LGBTQ+ documentation practices

Submitted two ADA abstract

2022 Review: Partner with Patients and Clinics serving diverse patients



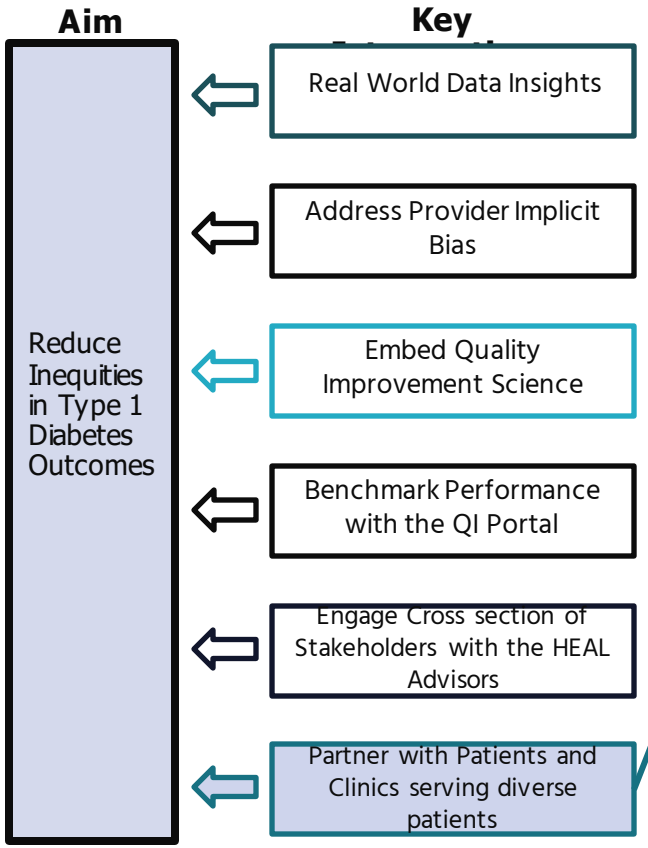
T1DX Patient/Parent Advisory Committee

Developed questions to understand what "person-centered care" means to people with diabetes; analysis underway

Intentionally targeting centers that serve a range of communities to diversity the network

	Percentage of T1DX-QI Centers			
	Located in rural areas	With >=50% racial minority population	With >=50% population publicly insured	Safety net
Pediatrics	13%	50%	19%	3%
Adults	13%	50%	47%	20%

2022 Review: Partner with Patients and Clinics serving diverse patients



Recognition – Top 10 Abstracts Submitted to ADA

T1DX-QI work is gaining recognition among diabetes leaders and researchers

American Diabetes Association.
Connected for Life

June 1, 2022

Dear Dr. Osagie Ebekozien,

On behalf of the American Diabetes Association, we would like to extend our heartfelt congratulations to you on having been selected as a recipient of the National Health Disparities Committee's Top 10 Recommended Abstracts for the following abstract:

Abstract #4224
Inequities in Glycemic Outcomes for Patients with Type 1 Diabetes: Six-Year (2016–2021) Longitudinal Follow-Up by Race and Ethnicity of 36,390 Patients in the T1Dx-QI Collaborative

OSAGIE EBEKOZIEN, NUDRAT NOOR, MANMOHAN K. KAMBOJ, ORI ODUGBESAN, SHIDEH MAJIDI, RACHEL HOPKINS, EMILY L. DEWIT, ROBERTO IZQUIERDO, SHIVANI AGARWAL, ANASTASIA ALBANESE-O'NEILL, DAVID M. MAAHS, MARK A. CLEMENTS, T1DX-QI COLLABORATIVE

The Health Disparities Committee's Top 10 Recommended Abstracts recognizes health disparities related abstracts that have been accepted to the American Diabetes Association 82nd Scientific Sessions. These abstracts focus on health care disparities/inequities in diabetes outcomes. The ideal selections may detail research that helps us understand factors underlying diabetes disparities and inequities or demonstrates practical interventions that may contribute to eliminating them. For additional information please visit: professional.diabetes.org/HDCabstracts.

Once again, congratulations on this much-deserved recognition for your significant contributions to the diabetes community.

Sincerely,

Dr. A. Enrique Caballero
Harvard Medical School
Chair, National Health Disparities Committee

National Office
2451 Crystal Drive
Suite 900
Arlington, VA 22202

1-800-DIABETES (800-342-2383)

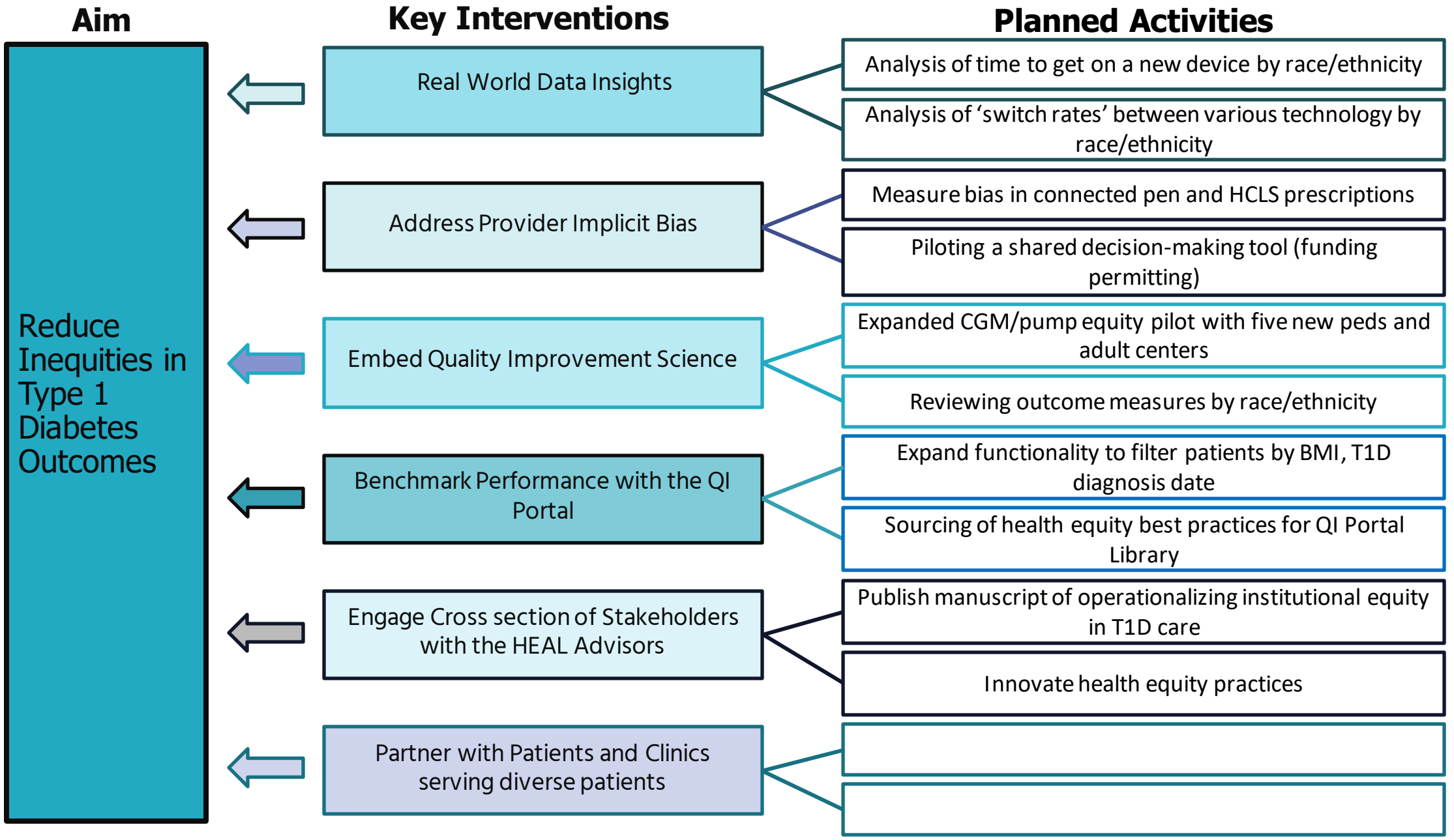
diabetes.org
@AmDiabetesAssn

Questions

Which of the 2022 highlights are you most excited about and want to see more of in 2023?

Is there a critical gap missing in our 2022 overall approach and key interventions that we should address in 2023?

Key Driver Diagram: T1D Exchange HEAL Program 2023 Future



Updates and Close Out

Thank you

Next HEAL Advisory Committee meeting

- Thursday 4/20/23 1-2:30 pm EST

Hybrid Closed-Loop Systems and Glycemic Outcomes in Children and Adults With Type 1 Diabetes: Real-World Evidence From a U.S.-Based Multicenter Collaborative

Nudrat Noor, Manmohan K. Kamboj, Taylor Triolo, Sarit Polsky, Ryan J. McDonough, Carla Demeterco-Berggren, Laura Jacobsen, Rona Sonabend, Osagie Ebekozien, and Daniel J. DeSalvo

T1D Exchange

Background

- Increasing evidence demonstrates the benefits of new diabetes technologies, including insulin pumps and continuous glucose monitors (CGM), for glycemic management in people with type 1 diabetes (T1D).

- In addition to the independent use of these technologies, hybrid closed loop systems (HCLS), which combine insulin pumps and CGM with a closed-loop algorithm controller to automate insulin delivery, can improve glucose levels.

- This study compared glycemic outcomes in users of HCLS with those of users of insulin pumps and CGM without automated insulin delivery and those using multiple daily insulin injections (MDI) with CGM in youth and adults with T1D.

T1D Exchange

Methods

- We analyzed electronic medical records data (2019–2021) from the T1D Exchange Quality Improvement Collaborative (T1DXQIC), a multicenter database for people with T1D (3).

- A total of 28,019 people, aged $6 years with T1D diagnosis for at least 1 year, were classified into three groups by mode of insulin treatment and CGM use. At their most recent visit, patients who reported using HCLS (either Tandem t:slim X2 pump with Control-IQ or Medtronic 670G or 770G pump with active automated mode)

Methods

- HCLS users: Medtronic 670G or 770G pump with active automated model (N = 2,047),
- Pump+CGM users: those using an insulin pump together with a CGM without automated insulin delivery (N=12,306)
- MDI+CGM: Those using MDI for insulin therapy along with a CGM device (N =13,613).

- Primary outcome: Most recently recorded HbA1c (%).
- Secondary outcomes: Time in range (TIR), defined as percentage of time spent between 70 and 180 mg/dL, time below range (TBR) (250 mg/dL), using an average of the last 14 days.

Results

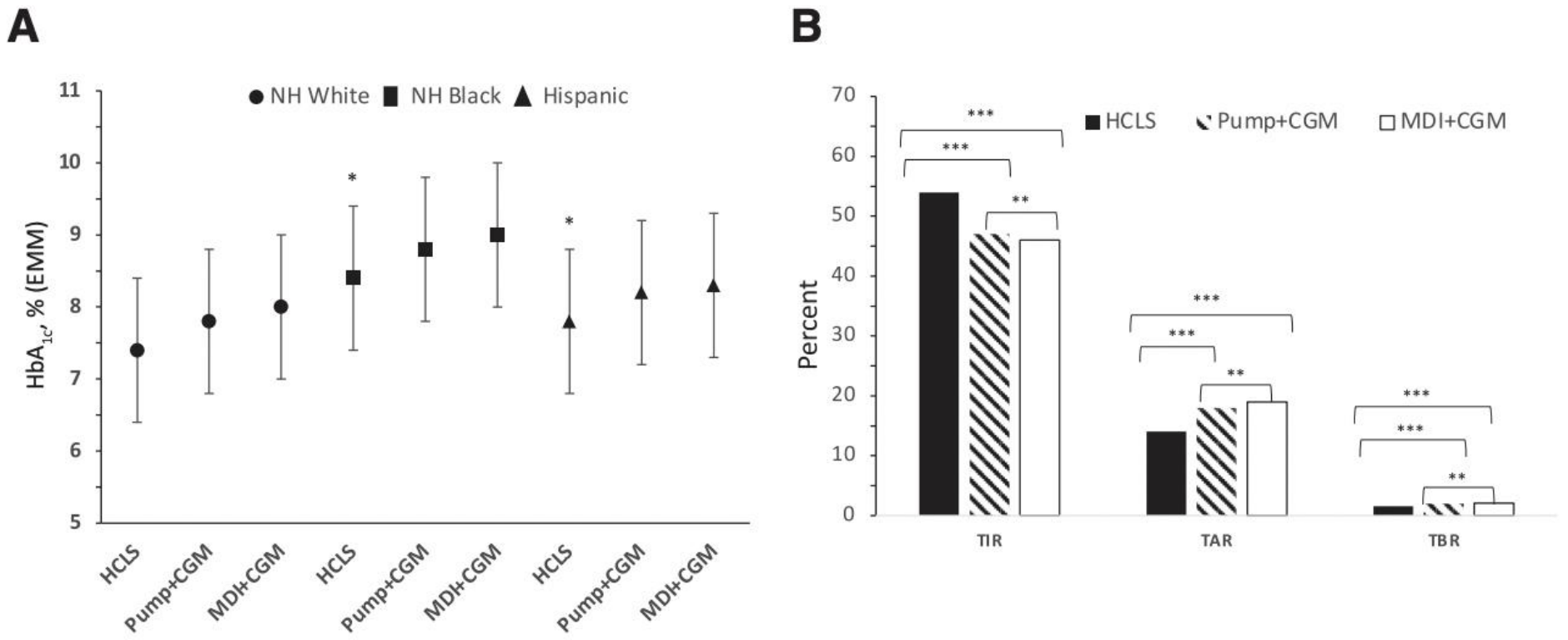


Figure 1–*A*: EMM for HbA_{1c} levels across insulin therapy use groups by race/ethnicity, adjusted for age, sex, and insurance type. *$P < 0.001$ (Bonferroni corrected) for comparison of HbA_{1c} in NH Black vs. NH White and Hispanic vs. NH White HCLS users by Mann-Whitney *U* test. *B*: EMM for TIR, TAR, and TBR, adjusted for age, sex, race/ethnicity, and insurance type. **$P < 0.01$; ***$P < 0.001$. *P* values were determined by Mann-Whitney *U* test and were Bonferroni corrected. The following numbers of samples were used: TIR, HCLS = 1,664 and insulin+pump = 7,629; time below 70 mg/dL, HCLS = 1,330 and insulin+pump = 10,484; time below 54 mg/dL, HCLS = 1,333 and insulin+pump = 10,484; time above 250 mg/dL, HCLS = 1,332 and insulin+pump = 10,416.

Conclusion

- We demonstrate the value of HCLS use in lowering glycemic outcomes; however, a limitation of this cross-sectional study is that we were unable to rule out reverse causation, in that people with lower HbA1c may be more likely to adopt HCLS.

- While the benefit of HCLS technology is apparent for both children and adults, the adult population showed better glycemic levels than the pediatric group, potentially owing to the inherent challenges in reaching optimal glycemic targets in children and young adults with T1D.

- Advanced diabetes technology use was lower in NH Black and publicly insured people, indicating that social disparities continue to be a hindrance to better health outcomes in this population.

T1D Exchange