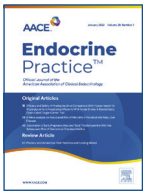
Endocrine Practice xxx (xxxx) xxx

Endocrine Practice™
www.endocrinepractice.org



Original Article

Current Practices in Operationalizing and Addressing Racial Equity in the Provision of Type 1 Diabetes Care: Insights from the Type 1 Diabetes Exchange Quality Improvement Collaborative Health Equity Advancement Lab

Ananta Addala, DO, MPH [1,*], Ann Mungmode, MPH [2], Emma Ospelt, MPH [2], Janine E. Sanchez, MD [3], Faisal Malik, MD, MSHS [4], Carla Demeterco-Berggren, MD, PhD [5], Ashley Butler, PhD [6], Colette Edwards, MD, MBA [7], Makaila Manukyan, MPP [8], Margarita Ochoa-Maya, MD [9], Margaret Zupa, MD [10], Osagie Ebekozien [2,11]

[1] *Division of Pediatric Endocrinology, Department of Pediatrics, Stanford School of Medicine, California*
[2] *T1D Exchange, Boston, Massachusetts*
[3] *Division of Pediatric Endocrinology, University of Miami, Florida*
[4] *Department of Pediatrics, University of Washington School of Medicine, Seattle, Washington*
[5] *Division of Pediatric Endocrinology, University of California, San Diego, Rady Children's Hospital, San Diego, California*
[6] *Division of Pediatric Endocrinology, Baylor College of Medicine, Texas Children's Hospital, Houston, Texas*
[7] *Humana, Louisville, Kentucky*
[8] *Office of Equity, Vitality, and Inclusion, Boston Medical Center, Boston, Massachusetts*
[9] *Ascendis Pharma, Hellerup, Denmark*
[10] *Divison of Endocrinology, University of Pittsburgh Medical Center, Pittsburgh*
[11] *Deartment of Population Health, University of Mississippi School of Population Health, Mississippi*

ARTICLE INFO

Article history:
Received 17 August 2023
Received in revised form
28 September 2023
Accepted 2 October 2023
Available online xxx

Key words:
medical racism
racial equity
disparities
type 1 diabetes
Quality Improvement
social-ecological model
implicit bias

ABSTRACT

Objective: Medical racism contributes to adverse health outcomes. Type 1 Diabetes Exchange Quality Improvement Collaborative (T1DX-QI) is a large population-based cohort engaged in data sharing and quality improvement to drive system changes in T1D care. The annual T1DX-QI survey included questions to evaluate racial equity in diabetes care and practices to promote equity.
Methods: The annual T1DX-QI survey was administered to participating clinics in fall 2022 and had a 93% response rate. There were 50 responses (pediatric: 66% and adult: 34%). Questions, in part, evaluated clinical resources and racial equity. Response data were aggregated, summarized, and stratified by pediatric/adult institutions.
Results: Only 21% pediatric and 35% adult institutions felt that all their team members can articulate how medical racism contributes to adverse diabetes outcomes. Pediatric institutions reported more strategies to address medical racism than adult (3.6 vs 3.1). Organizational strategies to decrease racial discrimination included employee trainings, equity offices/committees, patient resources, and hiring practices. Patient resources included interpreter services, transportation, insurance navigation, and housing and food assistance. Hiring practices included changing prior protocols, hiring from the community, and diversifying workforces. Most institutions have offered antiracism training in the last year (pediatric: 85% and adult: 72%) and annually (pediatric: 64% and adult: 56%). Pediatric teams felt that their antiracism training was effective more often (pediatric: 60% and adult: 45%) and more commonly, they were provided resources (pediatric: 67% and adult: 47%) to help address inequities.
Conclusion: Despite increased antiracism training, insufficient institutional support and perceived subeffective training still represent obstacles, especially in adult institutions. Sharing effective strategies to address medical racism will help institutions take steps to mitigate inequities.

Abbreviations: HEAL, Health Equity Advancement Lab; SES, socioeconomic status; T1D, type 1 diabetes; T1DX-QI, T1D Exchange Quality Improvement Collaborative.

* Address correspondence to Ananta Addala, DO, MPH, Center of Academic Medicine, MC 5660, 453 Quarry Road, Palo Alto, CA 94304.
E-mail address: aaddala@stanford.edu (A. Addala).

https://doi.org/10.1016/j.eprac.2023.10.001
1530-891X/

Please cite this article as: A. Addala, A. Mungmode, E. Ospelt *et al.*, Current Practices in Operationalizing and Addressing Racial Equity in the Provision of Type 1 Diabetes Care: Insights from the Type 1 Diabetes Exchange Quality Improvement Collaborative Health Equity Advancement Lab, Endocrine Practice, https://doi.org/10.1016/j.eprac.2023.10.001

Introduction

Inequities in all aspects of care and outcomes for type 1 diabetes (T1D) are long standing, well-described, and warrant attention.[1-8] In the United States, disparities in HbA1c levels exist across the lifespan by race/ethnicity, insurance status, and socioeconomic status (SES).[7-12] Diabetes technology use is the lowest in individuals from minoritized race/ethnicity and low-SES groups.[7,8] On the other hand, rates of severe hypoglycemia and diabetes ketoacidosis are the highest in minoritized race/ethnicity and low-SES groups.[7,13] Although the relationships of SES and the insurance status with minoritized race/ethnicity are strong in the United States, minoritized race/ethnicity is independently associated with a higher HbA1c level, lower use of advanced diabetes technologies, and higher frequency of diabetes-related complications.[4,13]

Medical racism is the systematic discrimination against individuals of color in the medical system, which is often supported by structural inequities in the society at large.[14] Medical racism is likely a major driver in the pervasiveness of these disparities in diabetes care and outcomes.[3,6,14-17] Although being underexplored in the field of T1D,[3,5,17] medical racism has been implicated in adverse health outcomes broadly and is commonplace.[15] The impact of medical racism has primarily been documented in type 2 diabetes, in which the experience of perceived discrimination results in a higher HbA1c level, greater lower engagement with medical management, and poorer psychosocial states.[18] Achievement of racial equity in medicine requires implementation of a process to systematically address and eliminate medical racism.

Underrepresented individuals with T1D have the dual burden of navigating diabetes-related barriers and medical racism.[3] Appropriate management of T1D requires consideration of disease management within the context of insurance coverage, financial security, food security, literacy, numeracy, job security, and psychosocial states, to avoid dysglycemia.[3,16] To advance structural racial equity in T1D care, one must address insurance-mediated barriers, particularly for public payers and purveyors of high-deductible cost-prohibitive insurance plans.[3,19] In addition to policy changes to address insurance-mediated barriers, institutional protocols can be implemented to advance racial equity.

To better understand and address the dual burden of T1D and medical racism for underrepresented individuals, medical racism must be addressed and racial equity T1D care and outcomes must be operationalized.[3,14,17] Racial equity can be contextualized in the social-ecological model, a health behavior model that considers the complex interplay between the individual and their relationships, community, and societal factors.[20] Racial equity can be mapped on to the social-ecological model to structure solutions to individual, interpersonal, institutional, and systemic medical racism[21-23] (Supplemental Fig. 1). In this study, we aimed to share current practices to operationalize institutional racial equity across 54 US diabetes centers.

Highlights

- The literature on institutional solutions to advance racial equity are limited.
- Many T1DX-QI centers started institutional efforts to promote racial equity.
- Systematic data collection was the least common institutional strategy to advance racial equity in diabetes.
- Clinical centers can utilize medical records to audit and benchmark.
- We present a theoretical framework for institutional health equity.

Clinical Relevance

Identifying and operationalizing institutional efforts to promote racial equity in health care access, management, and outcomes is a multistep process and is necessary to establish racial equity in care and outcomes. Results shared in this study highlight current practices as well as opportunities to further operationalize racial equity in diabetes care.

Methods

This is a mixed method study that includes surveys of the clinics in the T1D Exchange Quality Improvement Collaborative (T1DX-QI) and semistructured group discussion with stakeholders to map the key drivers of institutional health equity in T1D care and delivery.

The T1D Exchange Quality Improvement Health Equity Advancement Lab

The T1DX-QI is a network of >50 US clinical centers (Fig. 1) encompassing >300 clinicians and 85 000 persons with T1D. Founded in 2016, T1DX-QI has leveraged its registry data to report on inequities in T1D outcomes, to evaluate institutional medical racism, and to plan for a path to racial equity.[1,2,24] The systematic collection of clinic-wide data allows for benchmarking by race/ethnicity, insurance status, and other minoritized characteristics of persons living with T1D and of clinic-level quality of care.[24,25] Next, through quality improvement initiatives aimed at its centers, T1DX-QI has planned institutional-level initiatives to increase diabetes technology utilization and has launched the Health Equity Advancement Lab (HEAL). The purpose of HEAL is to evaluate the state of disparities in a data-driven fashion while piloting innovative solutions to promote racial equity.[2] HEAL also engages diverse advisors, including those living with diabetes and their caregivers, to guide T1DX-QI's goals and next steps. The HEAL advisors prioritized the inclusion of minoritized patients with T1D to ensure that any data and recommendations generated from HEAL are congruent with live experiences, an important aspect of implementing racial equity at the institutional level.[3]

HEAL Advisory Committee Semistructured Discussions

The HEAL Advisory Committee was convened in 2021 to gather a network of experienced clinical and research leaders in the domain of health equity, along with minoritized individuals living with diabetes. Through semistructured group discussions utilizing framework analysis grounded in the social-ecological model and facilitated by members of the HEAL Advisory Committee (A.A., A.M., and O.E.), qualitative data were collected to model racial equity and identify key drivers of action to advance racial equity. After 2 rounds of discussion, real-time consensus was reached on the priority areas that are described in this analysis, including adapting a framework for racial equity and identifying key drivers for T1DX-QI.

T1DX-QI Annual Survey

An important early step in addressing racial equity begins with an assessment of the current practices and identifying those that are antiracist and therefore should be retained as well as

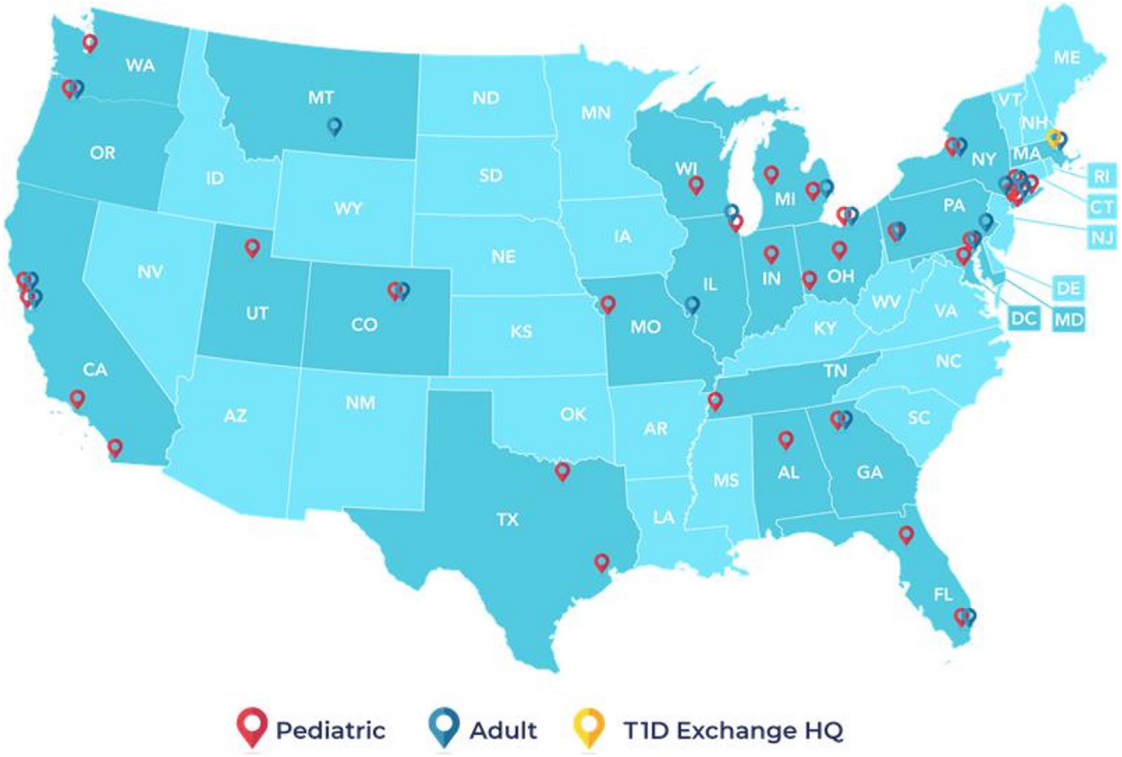


Fig. 1. Geographic distribution the T1DX-QI clinical centers.

determining other areas requiring improvement. As an illustrative example of this in practice, we present here a portion of results from the T1DX-QI's 2022 Annual Survey (Appendix 1). This annual practice supports the T1DX-QI for future quality improvement by collecting contextual information to supplement electronic health record data provided by the centers and to identify areas of future implementation. Questions are grouped into themes informed by T1DX-QI network interests and scientific inquiry. The 2022 Annual Survey included questions on the number of patients seen with T1D and type 2 diabetes, current staffing, and methods implemented (as described here) to operationalize racial equity.

Survey Development, Dissemination, and Analytical Approach

Survey development included an initial 5 questions developed by A.A., A.M., and O.E. Using principles of cognitive testing[26,27] for qualitative validation of the survey measures, the HEAL Advisory Committee members made modifications and expanded the survey to 10 questions. The T1DX-QI surveyed its clinical centers to evaluate the institutional practices for racial equity. Clinical centers ($n = 54$) were surveyed online via Qualtrics, distributed to the clinical center leader for each site via email, between August and September of 2022. Some participants opted to skip specific questions and therefore, we present question-specific response rates. We report descriptive frequencies of the survey responses to describe the current state of the T1DX-QI clinical centers. Given that the underlying goal was a descriptive assessment of centers without specific hypotheses, we did not perform group comparisons or significance testing. Descriptive analyses and figure generation were performed in R studio version 4.1.2.

No patient-identifiable information was collected for the purposes of this study. After central institutional review board approval, center coordinators completed the survey on behalf of the centers. All participating centers are governed under a central Western institutional review board.

Results

T1DX-QI Annual Survey: Evaluating Institutional Practices that Promote Racial Equity

Demographics of centers that completed the annual survey (response rate of 93%: 33 pediatric and 17 adult centers) are presented in Table 1. We attribute the high response rate to the normalization of institutional assessments as part of the culture of participating in the T1DX-QI. The findings from the annual survey demonstrate different approaches and perceived effectiveness of institutional efforts to advance racial equity within pediatric and adult institutions. Results of the first 9 quantitative questions are presented in Table 2. A majority of institutions (85% pediatric and 72% adult) offered antiracism training in the 12 months before the survey, and approximately half of all respondents felt their institution's antiracism training was effective (60% pediatric and 45% adult). Only 21% of pediatric and 35% of adult institutions felt that all their team members were able to articulate how medical racism contributes to adverse health outcomes in diabetes. Pediatric institutions have implemented more strategies to address racial equity than adult institutions (on average 3.6 and 3.1, respectively). Figure 2 details the institutional strategies (question 3; Fig. 2 *A*) and resources (question 9; Fig. 2 *B*) to advance racial equity at T1DX-QI clinical sites. The most common institutional strategy was a clear mission statement or vision (73% pediatric and 82% adult), whereas the least common strategy was systematic data evaluation of inquiries by race/ethnicity (27% pediatric and 29% adult). The greatest differences between the pediatric and adult institutions were seen in the development of formal committees and in documentation of strategies to address institutional racism. Differences in the

Table 1
Clinical Profiles of Participating Pediatric and Adult Centers That Completed the T1DX-QI 2022 Annual Survey

Characteristic	Pediatric ($N = 33$)	Adult ($N = 17$)
T1D population size (patients served annually)[a]		
Small (<1000)	10 (30)	7 (44)
Medium (1001-1500)	9 (27)	5 (31)
Large (>1500)	14 (42)	4 (25)
Percentage of patients on public insurance[a]		
Small (≤35%)	14 (44)	7 (54)
Medium (36%-49%)	12 (38)	4 (24)
Large (≥50%)	6 (19)	2 (12)
Percentage of patients who identify as non-White		
Small (<30%)	12 (38)	4 (24)
Medium (30%-49%)	10 (30)	8 (47)
Large (≥50%)	11 (33)	5 (29)
Center location		
Urban	31 (94)	16 (94)
Suburban	2 (6)	1 (6)
Geographic region		
Northeast	8 (24)	7 (41)
Midwest	9 (27)	2 (12)
South	8 (24)	3 (18)
West	8 (24)	5 (29)
Percentage of patients using a CGM[a]		
Small <60%)	5 (15)	2 (12)
Medium (60%-80%)	13 (39)	4 (24)
Large (≥80%)	6 (19)	2 (12)
Percentage of patients using an insulin pump[a]		
Small (≤45%)	9 (27)	2 (12)
Medium (46%-65%)	8 (24)	3 (18)
Large (>65%)	7 (21)	1 (6)

Abbreviations: CGM, continuous glucose monitoring.
[a] Only a subset of centers responded to this question.

institutional resources were apparent for pediatric and adult sites (question 9; Fig. 2 *B*) with pediatric institutions providing more housing and food assistance.

Qualitative Analysis of Semistructured Group Discussions of the HEAL Advisory Committee: Key Areas of Action for T1DX-QI

In the qualitative analysis, the HEAL Advisory Committee identified responsible sectors of the health care institution and detailed required actions and solutions for institutional racial equity. Figure 3 presents a theoretical framework of key areas of action newly developed by the T1DX-QI HEAL Advisory Committee. Within the health care institution, 6 key sectors, namely leadership, human resources, medical research, clinical care, financial office, and operations, were identified. Each of these sectors can implement changes that share the same 5 required processes: access to health care and research, community engagement and information dissemination, bias and allyship training, streamline care delivery policies, and diverse recruitment, retention, and promotion.

The advisory committee discussed actionable strategies for each sector of the health care institution to advance racial equity for people with diabetes. For leadership (board members, executives, or chairs of department and divisions), actions included inclusion of diverse leadership members, utilizing positionality as allyship tool, and training on implicit bias and microaggressions. For human resources, hiring and promoting diverse individuals, implementing dashboards to evaluate diversity in the workforce, and ensuring bias and allyship training during onboarding were strategies identified to advance equity. The medical research sector can ensure design of innovations for diverse individuals (by language, ability, education, culture, and income), solicit user feedback from diverse groups, and prioritize the recruitment and retention of diverse individuals in clinical trials. Clinical care can be delivered in a way that ensures linguistically and culturally competent support representative of the diversity of individuals affected by diabetes.

Table 2
Results From the Racial Equity Subsection of the T1DX-QI 2022 Annual Survey

Question	Adult centers (%)	Pediatric centers (%)
1. Members of my team can articulate how medical racism contributes to adverse health outcomes:		
a. Strongly agree	7 (41)	7 (21)
b. Agree	8 (47)	23 (70)
c. Neutral	2 (12)	3 (9)
d. Disagree	0	0
e. Strongly disagree	0	0
2. My team can articulate how medical racism contributes to adverse health outcomes in diabetes:		
a. All members	6 (35)	7 (21)
b. Most members	7 (41)	20 (61)
c. Some members	4 (24)	6 (18)
d. Few members	0	0
e. No members	0	0
3. What level does this committee convene? Select all that apply:		
a. Division	4 (40)	3 (12)
b. Department	8 (80)	19 (73)
c. Parent organization	7 (70)	13 (50)
d. Other (please specify)	0	3 (12)
4. How often is this priority evaluated?		
a. Daily	0	2 (8)
b. Weekly	0	1 (4)
c. Monthly	4 (40)	3 (12)
d. Quarterly	5 (50)	12 (46)
e. Once	1 (10)	2 (8)
5. Has your institution offered antiracism training in the last 12 months?		
a. Yes	12 (71)	28 (85)
b. No	1 (6)	2 (6)
c. Unknown/Unsure	4 (24)	3 (9)
6. (If yes to Question 5a) **My organization's antiracism training is effective to address structural racism:**		
a. Strongly disagree	2 (17)	0
b. Disagree	0	1 (4)
c. Neutral	3 (25)	7 (25)
d. Agree	4 (33)	14 (50)
e. Strongly Agree	3 (25)	6 (21)
7. (If yes to Question 5a) **How often are members expected to complete antiracism training?**		
a. No clear expectations	0	2 (7)
b. Once	1 (8)	0
c. More than once but not specified	1 (8)	4 (14)
d. Monthly	0	0
e. Quarterly	0	0
f. Annually	10 (83)	21 (75)
g. Other	0	0
h. Did not answer	0	1 (4)
8. Describe your organization's strategies to improve organizational practices to address medical racism[a]		
a. Additional training and education opportunities for staff	12 (36)	2 (12)
b. Office or Committee dedicated to equity or antiracism	9 (27)	3 (18)
c. Addressing social determinants of health	2 (6)	4 (24)
d. Addressing equity through institutional practices (ie, hiring)	4 (12)	2 (12)
e. Naming equity as a priority (ie, internal staff communication, conference and symposium themes, and grand rounds)	4 (12)	1 (6)
f. No additional strategies	12 (36)	6 (35)

[a] Open-ended question summarized here in themes.

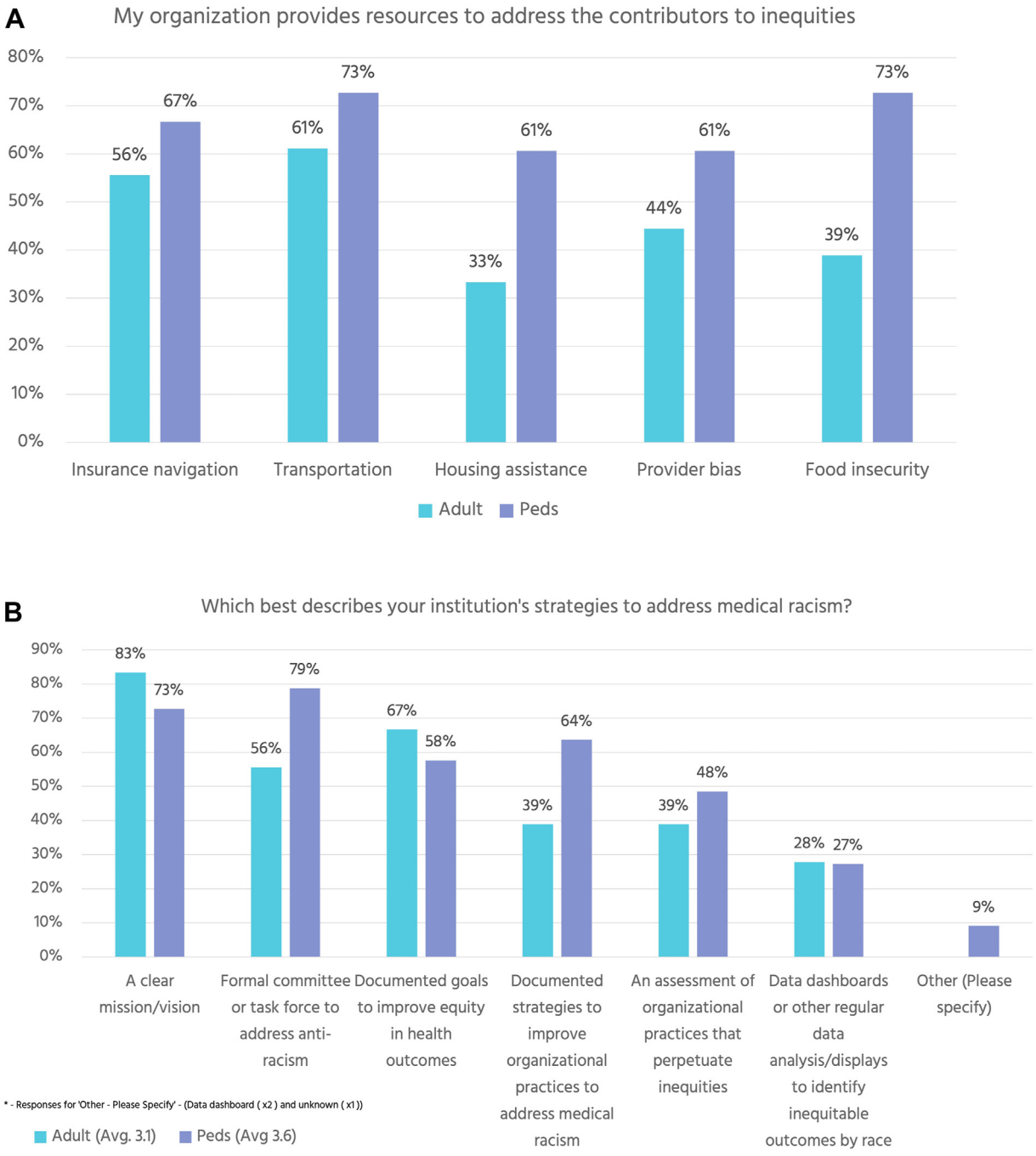


Fig. 2. *A,* Institutional strategies to address racial equity in the T1DX-QI sites. *B, Institutional* resources to address racial equity in the T1DX-QI sites.

Clinicians should receive implicit bias training, and leaders should encourage clinician engagement with the community for tailored public health messaging. The financial team can earmark the operating budget in ways that prioritize advancing racial equity, can focus philanthropic efforts on racial equity, can allocate bonuses to incentivize and recognize equity, and can ensure affordability of health care and availability of support to address social barriers to health for individuals living with diabetes. Finally, operations can develop programs to streamline refills, to improve communication between persons with diabetes and their health care providers and insurers. Operations staff can also troubleshoot system failures to minimize the impact of health policies that adversely impact minoritized individuals.

Discussion

We report the current state of institutional policies for racial equity for T1DX-QI clinical centers and a theoretical model to inform actions that can be taken by health care institutions to advance racial equity for people with diabetes. Although the breadth of disparities in diabetes care, management approaches, and outcomes are increasingly recognized, there are few documented institutional solutions to advance racial equity in the literature. Findings from our clinical center survey data demonstrate that a majority of pediatric and adult clinical centers have undertaken institutional efforts to promote racial equity. These efforts commonly included a clear mission or vision of the

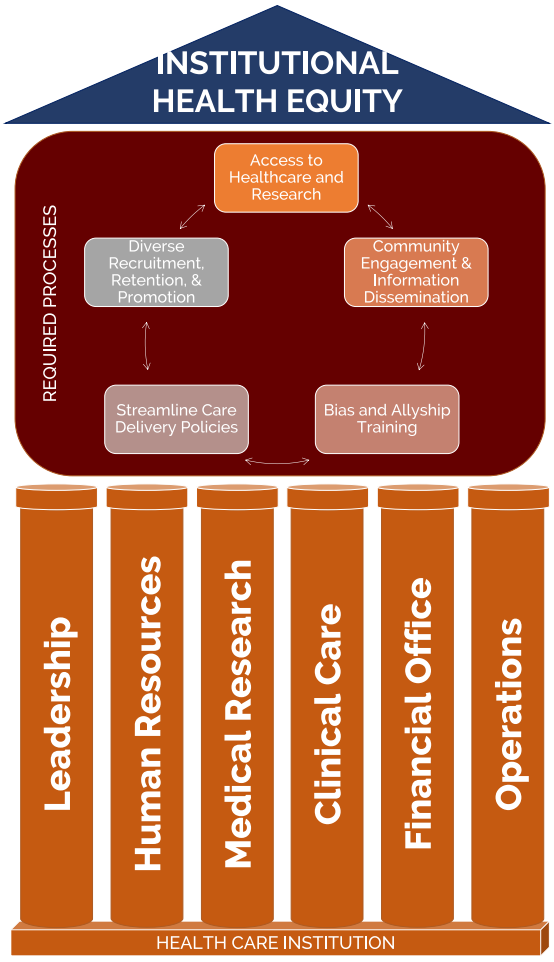


Fig. 3. Theoretical framework of key areas of action identified by the T1DX-QI HEAL Advisory Committee.

institution, antiracism training, and a formal committee/task-force to address antiracism in the institution. We found that systematic data collection was the least common strategy utilized by our clinical centers. This presents an opportunity for improvement because all clinical centers have electronic health records that can be harnessed for audit and feedback; such benchmarking may motivate the introduction of innovative solutions. However, a challenge in promoting racial equity in the health care institution is in appropriately identifying and documenting race/ethnicity in the electronic health record.[24,28] Given that many T1DX-QI clinical centers have prioritized the promotion of racial equity, the key drivers of improvement identified by the HEAL Advisory Committee offer framework for institutions, by sector, to implement changes that can advance racial equity in health care. Each of these sectors have an opportunity to execute their daily work processes to advance racial equity.[29,30]

Recruitment, retention, and promotion of minoritized individuals are particularly important in academia where hierarchical structures have enshrined positional power for individuals. Generational privilege has historically contributed to leadership in academia.[31] Our survey findings demonstrate that institutions have started to modify their mission statements such that new leadership and committees have formed to address racial equity. Critical in establishing these positions is accounting for the "minority tax" where minoritized individuals are disproportionately asked to undertake unfunded and uncredited research to advance institutional racial equity.[32,33] Solutions to mitigate the disproportionate burden for minoritized individuals include the following[32,33]: (1) valuing the work via recognition, promotion, internal grant funding, and monetary compensation; (2) action-oriented solutions to promote racial equity; (3) providing administrative support to execute the logistics implementing racial equity; and (4) an institutional commitment to antiracism. The introduction of diverse individuals is not only associated with representation that is key to advance racial equity, but also associated with improvement in productivity and creativity.[34,35]

It is critical to facilitate communication in non-English languages for patients and families. Language access was not consistently stated as a priority in the clinics surveyed despite it being identified as one component of the required processes to ensure equitable information dissemination by the HEAL advisory board. The clinical care and research teams may ensure that diabetes education materials and research materials are available in languages other than English.[36] In the United States, 241 million people speak a language other than English at home. Spanish is the most commonly spoken language other than English (representing 61.6% of this population) followed by Chinese (5.2%), Tagalog (2.6%), and Vietnamese (2.3%).[36] Language equity in the user interfaces and instructions for use for new diabetes technologies is a way to address institutional racial equity by making it accessible to a broader population.

Another aspect that clinicians, researchers, and the human resources team need to address is implicit bias. Although 67% of pediatric and 44% of adult clinics provided resources on clinician bias, few clinics felt confident that their team members can articulate how medical racism contributes to adverse health outcomes. Although the focus of implicit bias training is often focused on the clinical care delivery, the role of implicit bias in hiring is well established.[29,30,37] Human resources in the health care institution can combat institutional racism by ensuring the hiring of diverse individuals along with retention and promotion of historically underrepresented individuals. In addition, there is a large body of evidence that also details implicit bias in health care delivery and medical research.[1,3,5,15] Specifically, diabetes providers have been shown to be at risk for implicit bias against recommending diabetes technologies to those on public insurance and those of minoritized race/ethnicity.[1,5] Thus, provider implicit bias should be addressed in institutional policies.

Recruitment and retention of a diverse population is an urgent priority for clinical trials as a matter of moral importance and scientific integrity. Many of the institutions who participate in the T1DX-QI have a strong research component; however, the survey results make clear that research equity has not been consistently prioritized at the institutional level. The lack of population and disease representative recruitment into clinical trials has historically resulted in significant adverse outcomes for the understudied groups.[14,38-40] Solutions to equitable recruitment include benchmarking to recruit minoritized individuals, access to interpreter and translation services, flexibility in the institutional review boards (eg, minimizing paperwork burden for low-risk studies), hiring culturally and linguistically diverse research staff, and engaging with the community in research execution.[41] In addition, funding agencies should prioritize benchmarking the funding of individuals from underrepresented groups to bridge disparities.[42,43]

One of the limitations of this work is that it was conducted in a small sample size ($N = 50$) and statistical significance was not evaluated due to the exploratory nature of the surveys. The T1DX-QI clinical sites are not representative of all diabetes centers and therefore, the results of the survey may be different in other clinics and institutions. In addition, the qualitative data summarizing the semistructured group discussions were not analyzed with typical

qualitative methodical approaches, such as inductive or deductive coding and reporting of only those themes that reach thematic saturation. Instead, we opted to use thematic analysis with real-time consensus with all members of the HEAL advisory board to allow for an accurate representation of the numerous expertise of the members. The findings from the quantitative and qualitative analyses are supported by the current evidence base and advance the current evidence base on the current state of institutional efforts to promote racial equity. Additional research with larger sample sizes is needed to further evaluate the significance of these findings. It is important to recognize that minoritized individuals with T1D not only experience interpersonal and institutional racism but also face microaggressions perpetrated by other institutions, such as police, immigration, housing, banking, and employment.[3,17] Therefore, interpersonal and systemic solutions for racial equity are an important aspect of future research.

Conclusion

Institutional efforts to promote racial equity in health care access, management, and outcomes are a multistep process that requires addressing racism that is pervasive in all aspects of society and medicine, and T1D is not exempt from it. Identifying and operationalizing efforts to address institutional medical racism in T1D is necessary to establish racial equity in care and outcomes. The results shared in this study highlight current practices as well as opportunities to further operationalize racial equity in diabetes care.

Disclosure

A.A. is supported by NIDDK K23 (K23DK13134201). Helmsley Charitable Foundation funds the T1DX-QI Collaborative. The other authors have no multiplicity of interest to disclose.

Author Contributions

A.A., A.M., and O.E. developed study aims and design. A.A. wrote the manuscript with critical contributions from A.M., O.E., and the HEAL advisory members. All authors reviewed and approved the manuscript.

References

1. Odugbesan O, Addala A, Nelson G, et al. 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*. 2022;24(9):619–627.
2. Ebekozien O, Mungmode A, Odugbesan O, et al. Addressing type 1 diabetes health inequities in the United States: approaches from the T1D Exchange QI Collaborative. *J Diabetes*. 2022;14(1):79–82.
3. Hill-Briggs F, Adler NE, Berkowitz SA, et al. Social determinants of health and diabetes: a scientific review. *Diabetes Care*. 2020;44(1):258–279.
4. Agarwal S, Kanapka LG, Raymond JK, et al. Racial-ethnic inequity in young adults with type 1 diabetes. *J Clin Endocrinol Metab*. 2020;105(8):e2960–e2969.
5. Addala A, Hanes S, Naranjo D, Maahs DM, Hood KK. Provider implicit bias impacts pediatric type 1 diabetes technology recommendations in the United States: findings from the gatekeeper study. *J Diabetes Sci Technol*. 2021;15(5):1027–1033.
6. Golden SH, Joseph JJ, Hill-Briggs F. Casting a health equity lens on endocrinology and diabetes. *J Clin Endocrinol Metab*. 2021;106(4):e1909–e1916.
7. Majidi S, Ebekozien O, Noor N, et al. Inequities in health outcomes in children and adults with type 1 diabetes: data from the T1D exchange quality improvement collaborative. *Clin Diabetes*. 2021;39(3):278–283.
8. Addala A, Auzanneau M, Miller K, et al. A decade of disparities in diabetes technology use and HbA1c in pediatric type 1 diabetes: a transatlantic comparison. *Diabetes Care*. 2021;44(1):133–140.
9. Addala A, Maahs DM, Scheinker D, Chertow S, Leverenz B, Prahalad P. Uninterrupted continuous glucose monitoring access is associated with a decrease in HbA1c in youth with type 1 diabetes and public insurance. *Pediatr Diabetes*. 2020;21(7):1301–1309.
10. Walker AF, Hood KK, Gurka MJ, et al. Barriers to technology use and endocrinology care for underserved communities with type 1 diabetes. *Diabetes Care*. 2021;44(7):1480–1490.
11. Agarwal S, Crespo-Ramos G, Long JA, Miller VA. "I didn't really have a choice": qualitative analysis of racial-ethnic disparities in diabetes technology use among young adults with type 1 diabetes. *Diabetes Technol Ther*. 2021;23(9):616–622.
12. 167-OR: 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. Diabetes. American Diabetes Association. [cited 2023 Mar 15]. https://diabetesjournals.org/diabetes/article/71/Supplement_1/167-OR/146467/167-OR-Inequities-in-Glycemic-Outcomes-for
13. Willi SM, Miller KM, DiMeglio LA, et al. Racial-ethnic disparities in management and outcomes among children with type 1 diabetes. *Pediatrics*. 2015;135(3):424–434.
14. Sotto-Santiago S, Poll-Hunter N, Trice T, et al. A framework for developing antiracist medical educators and practitioner-scholars. *Acad Med*. 2022;97(1):41–47.
15. Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care [Internet]. Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care*. National Academies Press (US); 2003 [cited 2020 May 19]http://www.ncbi.nlm.nih.gov/books/NBK220358/
16. Lipman TH, Smith JA, Patil O, Willi SM, Hawkes CP. Racial disparities in treatment and outcomes of children with type 1 diabetes. *Pediatr Diabetes*. 2021;22(2):241–248.
17. Golden SH. The contribution of structural racism to metabolic health disparities in the USA. *Lancet Diabetes Endocrinol*. 2021;9(8):478–480.
18. Egede LE, Campbell JA, Walker RJ, Linde S. Structural racism as an upstream social determinant of diabetes outcomes: a scoping review. *Diabetes Care*. 2023;46(4):667–677.
19. Anderson JE, Gavin JR, Kruger DF. Current eligibility requirements for CGM coverage are harmful, costly, and unjustified. *Diabetes Technol Ther*. 2020;22(3):169–173.
20. *The Social-Ecological Model: A Framework for Prevention*. Centers for Disease Control and Prevention; 2022 [cited 2022 Dec 17]https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html
21. Being Antiracist. National Museum of African American History and Culture. [cited 2022 Dec 14]. https://nmaahc.si.edu/learn/talking-about-race/topics/being-antiracist
22. Jones CP. Levels of racism: a theoretic framework and a gardener's tale. *Am J Public Health*. 2000;90(8):1212–1215.
23. Harper Browne C, O'Connor C. *A social ecological model of racism & anti-racism*. Center for the Study of Social Policy; 2021.
24. Mungmode A, Noor N, Weinstock RS, et al. Making diabetes electronic medical record data actionable: promoting benchmarking and population health improvement using the T1D Exchange Quality Improvement Portal. *Clin Diabetes*. 2022;41(1):45–55.
25. Corathers S, Williford DN, Kichler J, et al. Implementation of psychosocial screening into diabetes clinics: experience from the Type 1 Diabetes Exchange Quality Improvement Network. *Curr Diab Rep*. 2023;23(2):19–28.
26. Willis G. Cognitive Interviewing in Survey Design: State of the Science and Future Directions. In: Vannette DL, Krosnick JA, eds. *The Palgrave Handbook of Survey Research [Internet]*. Cham: Springer International Publishing; 2018:103–107. [cited 2020 Oct 27]. https://doi.org/10.1007/978-3-319-54395-6_14
27. Willis GB. *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Sage Publications; 2005.
28. Agawu A, Chaiyachati BH, Radack J, Duncan AF, Ellison A. Patterns of change in race category in the electronic medical record of a pediatric population. *JAMA Pediatr*. 2023;177(5):536–539.
29. White JD. How to Build an Anti-Racist Company. Harvard Business Review. 1 May 2022 [cited 2022 Dec 17]. https://hbr.org/2022/05/how-to-build-an-anti-racist-company
30. Ward L. What an Anti-Racist Business Strategy Looks Like. *Harvard Business Review*; 2020 Nov 30. https://hbr.org/2020/11/what-an-anti-racist-business-strategy-looks-like
31. Separate & Unequal: How Higher Education Reinforces the Intergenerational Reproduction of White Racial Privilege. CEW Georgetown. [cited 2022 Dec 17]. https://cew.georgetown.edu/cew-reports/separate-unequal/
32. Rodríguez JE, Campbell KM, Pololi LH. Addressing disparities in academic medicine: what of the minority tax? *BMC Med Educ*. 2015;15(1):6.
33. Williamson T, Goodwin CR, Ubel PA. Minority tax reform — avoiding overtaxing minorities when we need them most. *N Engl J Med*. 2021;384(20):1877–1879.
34. Why diversity matters. McKinsey & Company. [cited 2022 Dec 17]. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/why-diversity-matters
35. Rock D, Grant H. Why Diverse Teams Are Smarter. Harvard Business Review. 2016 Nov 4 [cited 2022 Dec 17]. https://hbr.org/2016/11/why-diverse-teams-are-smarter
36. Bureau UC. Nearly 68 Million People Spoke a Language Other Than English at Home in 2019. Census.gov. [cited 2022 Dec 17]. https://www.census.gov/library/stories/2022/12/languages-we-speak-in-united-states.html
37. Bertrand M, Mullainathan S. Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *Am Econ Rev*. 2004;94(4):991–1013.

38. Akturk HK, Agarwal S, Hoffecker L, Shah VN. Inequity in racial-ethnic representation in randomized controlled trials of diabetes technologies in type 1 diabetes: critical need for new standards. *Diabetes Care*. 2021;44(6):e121–e123.
39. DeVon HA, Mirzaei S, Zègre-Hemsey J. Typical and atypical symptoms of acute coronary syndrome: time to retire the terms? *J Am Heart Assoc*. 2020;9(7):e015539.
40. Brewster RCL, Steinberg JR, Magnani CJ, et al. Race and ethnicity reporting and representation in pediatric clinical trials. *Pediatrics*. 2023;151(4):e2022058552.
41. Addala A, Roque X, Figg L, et al. 262-OR: Recruiting historically underrepresented individuals into clinical trials: key lessons from project ECHO diabetes. *Diabetes*. 2022;71(Supplement_1):262–OR.
42. Ginther DK, Schaffer WT, Schnell J, et al. Race, ethnicity, and NIH research awards. *Science*. 2011;333(6045):1015–1019.
43. Ginther DK, Kahn S, Schaffer WT. Gender, race/ethnicity, and National Institutes of Health R01 Research Awards: is there evidence of a double bind for women of color? *Acad Med*. 2016;91(8):1098–1107.