



# Using Peer Power to Reduce Health Disparities: Implementation of a Diabetes Support Coach Program in Federally Qualified Health Centers

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Community health workers (CHWs) provide vital support to underserved communities in the promotion of health equity by addressing barriers related to the social determinants of health that often prevent people living with diabetes from achieving optimal health outcomes. Peer support programs in diabetes can also offer people living with diabetes invaluable support through a shared understanding of the disease and by offsetting diabetes-related stigma. As part of a Project Extension for Community Healthcare Outcomes (ECHO) Diabetes program, participating federally qualified healthcare centers were provided diabetes support coaches (DSCs) to facilitate patient engagement. DSCs hold invaluable expert knowledge, as they live with diabetes themselves and reside in areas they serve, thus combining the CHW role with peer support models. The use of DSCs and CHWs during the coronavirus disease 2019 pandemic and beyond is highly effective at reaching underserved communities with diabetes and promoting health equity.

Health disparities in type 1 diabetes outcomes include increased risk for morbidity and mortality based on race, ethnicity, and socioeconomic status (1–5). Moreover, technologies with demonstrated benefit for optimizing diabetes-related outcomes and quality of life such as continuous glucose monitoring (CGM) systems and insulin pumps remain underutilized in communities at greatest risk for disparate outcomes (6–8). Programs designed to promote health equity in diabetes must include interventions that are multilayered and concurrently target a multitude of obstacles experienced by underserved communities (9). Given the importance of addressing social determinants of health (SDOH) in efforts aimed at increasing health equity in diabetes, the use of community health workers (CHWs) offers an evidence-based solution for promoting health equity for underserved communities (10–13). CHWs reside within the local community and serve as trusted insiders for others in the area, offering support in navigating the health care system and connecting community members to vital health-related resources (10–13). One of the most important aspects of the CHW role is addressing barriers related to SDOH that often prevent people

living with chronic conditions from thriving (10). Peer mentoring is a related and equally promising intervention. Peer mentors are similar to CHWs; however, in the field of chronic condition management, peer mentors live with the condition themselves and thus provide unparalleled camaraderie and legitimacy that is crucial to offsetting condition-related stigma, building trusted relationships, and serving as a role model for health behavior changes (14–16).

Research demonstrates that the use of CHWs and peer mentors can improve outcomes in type 1 diabetes and type 2 diabetes, particularly for underserved communities (17–26). The use of CHWs in type 2 diabetes has been implemented to provide education, support, and advocacy in a wide range of clinical and community settings (15). In type 2 diabetes, interventions using CHWs have demonstrated improvement in A1C, blood pressure, diabetes knowledge, perceived competence in managing diabetes, and quality of life (16–21). Similarly, peer support models have been used in type 2 diabetes to promote health equity for underserved communities (23–26). Peer support in type 2

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diabetes has improved quality of life and social support and reduced hospitalization rates for diabetes-related complications (23–26). Peer support has also been used in type 1 diabetes in a pediatric setting with publicly insured adolescents and college students living with type 1 diabetes (22). Importantly, the type 1 diabetes peer support program demonstrated benefits for both the mentees and the mentors (22).

One example of an intervention that combines the CHW and peer support models can be found in the Project Extension for Community Healthcare Outcomes (ECHO) Diabetes program currently underway in Florida and California. Project ECHO is an approach to increase health equity through clinician empowerment that uses tele-education sessions to disseminate subspecialty knowledge (27–29). The Project ECHO model was founded at the University of New Mexico and is being used globally to address a broad range of chronic diseases and health-related challenges (27–29). As part of a Project ECHO Diabetes program, diabetes support coaches (DSCs) were trained to serve participating federally qualified health centers (FQHCs) to supplement provider tele-education as an additional direct resource for patient engagement (30). DSCs combine the role of a CHW and peer mentor; as members of the local community living with type 1 or type 2 diabetes, they are trained to address the unique needs of underserved communities living with diabetes. This article explicates implementation protocols for DSCs in the Project ECHO Diabetes program and presents pilot data in an effort to facilitate replication and refinement of this novel intervention.

### **Project ECHO Diabetes and DSCs**

A Project ECHO Diabetes pilot program was spearheaded in Florida and California, initially focusing specifically on type 1 diabetes (30,31). Multidisciplinary “hub” teams in Florida and California lead the Project ECHO Diabetes program and include adult and pediatric endocrinologists, clinical health psychologists, primary care health care professionals, dietitians, medical sociologists, epidemiologists, pharmacologists, public health professionals, and certified diabetes care and education specialists. Participating health centers, called “spokes” in the Project ECHO model, were recruited for the Project ECHO Diabetes pilot through innovative methods involving the use of the Neighborhood Deprivation Index, provider geocoding, and a focus on FQHCs to identify high-need catchment areas for diabetes outreach (32).

Twelve spoke sites in Florida and 11 spoke sites in California were recruited that collectively serve >1,900 people with type 1 diabetes. During the pilot, spokes participated in a 6-month intervention with 27 tele-education clinics,

access to real-time support with hub teams for complex medical decision-making, and access to a DSC (30).

In Project ECHO Diabetes, the recruitment for DSCs involves a coordinated effort between hub teams and spokes. The spokes are encouraged to identify people with type 1 or type 2 diabetes who are on a multiple daily injection (MDI) insulin regimen and are seen for care at their centers who would be good candidates to serve as a champion for their peers. The DSC job position does not require any specific credentialing, but applicants are encouraged to apply who have a personal connection to type 1 diabetes and to working with underserved communities. Training for DSCs includes completion of the following: the Association of Diabetes Care & Education Specialists’ Diabetes Paraprofessional Level 1 certification, the University of California San Francisco Center for Excellence in Primary Care’s health coach training, and all local trainings required by the hub teams’ institutions, such as Health Insurance Portability and Accountability Act privacy and institutional review board trainings. DSCs are also given access to the American Diabetes Association’s CHW annual membership and toolkit and opportunities to attend national conferences such as the National Association of Community Health Workers Unity Conference. The coaches meet weekly with hub teams, attend weekly Project ECHO Diabetes tele-education sessions, and meet monthly with clinical health psychologists or other health care professionals for enrichment sessions to address the unique psychosocial and medical challenges associated with working in this role.

The DSCs work within the spoke sites as paid employees to provide one-on-one peer coaching for referred patients living with type 1 or type 2 diabetes (on MDI insulin therapy). They hold regular social events and support groups for people with diabetes and create diabetes resource guides that are translated into Spanish or Creole, depending on the needs of each catchment area. Spokes attend an orientation for the Project ECHO Diabetes program that includes information on the DSC role and best-practice strategies for patient engagement. Mentees opt in to one-on-one peer support by signing a “DSC contract” that explains what a coach can do (like provide one-on-one peer coaching) and cannot do (like giving direct medical advice), and they indicate preferences and give permission for contact with the DSC (e.g., via telephone, e-mail, videoconference, or house visits). Although the DSC cannot provide direct medical advice, they have access to medically qualified hub team members who can serve as a liaison, as needed, in situations where spokes need diabetes expertise to support their patients. All DSC encounters are captured in REDCap, a secure data management platform. Additionally, participants working with DSCs consent to complete regular surveys, and their A1C data are obtained.

An evaluation of the Project ECHO Diabetes program is currently underway with a rigorous stepped-wedge design assessing patient-, provider-, and spoke-level outcomes. These findings are forthcoming, but here, we present preliminary data available from the pilot in Florida related to the use of the DSCs in the Project ECHO Diabetes program. Although all training and enrichment protocols for DSCs are the same in both states, Florida has fewer restrictions for in-person encounters (both pre- and post-coronavirus disease 2019 [COVID-19] pandemic); thus, pre- and post-pandemic utilization findings presented in this article focus on implementation patterns in Florida exclusively. Focus group data about the overall experiences of DSC, however, comes from both states.

## Research Design and Methods

Since kickoff of the Project ECHO Diabetes intervention in January 2019, DSCs have documented all interactions with Project ECHO participants in a REDCap database. This database was designed to capture weekly interactions, including form of communication, time spent with the participant, tasks conducted, patient discussions, questions or concerns, and action plans for follow-up. With the onset of COVID-19 pandemic lockdowns in spring of 2020, the REDCap patient encounter database provided the opportunity to compare how participants used DSCs before and during the pandemic.

All data management and analyses were conducted using SAS, v. 9.4, statistical software (SAS Institute, Cary, NC). A predetermined level of  $\alpha = 0.05$  was chosen to evaluate statistical significance. A descriptive summary of the DSCs and spoke participant enrollment and withdrawals was completed for the period of 1 January 2019 to 31 August 2021, along with all documented reasons for participant withdrawals. Descriptive statistics were computed for all recorded components of interactions, both overall and stratified by time windows before and during the pandemic, reported as frequencies and percentages for all categorical variables and mean  $\pm$  SD for number of follow-up weeks. Statistical significance was evaluated using  $\chi^2$  tests for categorical variables, with the exception of the Cochran Armitage test for trend being used with length of interactions.

At the conclusion of the pilot phase of the ECHO Diabetes program, DSCs from both states were given the opportunity to participate in focus groups to better understand their experiences and perspectives. Focus groups lasted for 1 hour and were held via Zoom during regularly scheduled meetings. A process of informed consent was used to enroll DSCs. Trained faculty and research coordinators external to the Project ECHO Diabetes program conducted the

focus groups to ensure that DSCs felt comfortable sharing openly about their experiences. Focus groups were audio-recorded and transcribed with all names and identifiers removed to ensure the confidentiality for participants. Ten topic domains were covered during the focus group sessions, and questions were asked using a script that was guided by existing research, with input from the shared multidisciplinary expertise of Project ECHO Diabetes hub team members (Table 1). Analysis for the focus groups was conducted by external vendor Datagain and included identification of major themes using a method of constant comparison associated with grounded theory (33).

Additionally, a unique subset of pilot participants was assessed pre-pandemic. Twenty-four adults from two large FQHCs in Miami, FL, working with DSCs had the opportunity to begin use of CGM during the Project ECHO Diabetes intervention. This group was able to obtain access to CGM through supplies donated from a secondary grant source of the University of Florida hub team. Through a process of informed consent, A1C values were obtained at regular clinic visits with their DSC during the study period. Data were collected in a Microsoft Excel spreadsheet and analyzed using SAS, v. 9.4, statistical software. Descriptive characteristics were reported as frequencies and percentages, whereas changes in continuous A1C values were reported as mean difference  $\pm$  SD, along with a 95% CI. Statistical significance was determined via a *t* test.

## Results

### *DSC Utilization Before and During the COVID-19 Pandemic*

Six DSCs enrolled and engaged with participants with type 1 or type 2 diabetes using MDI insulin therapy across nine Project ECHO Diabetes spoke locations in the state of Florida. The demographic characteristics of the DSCs mirrored the FQHC communities they served: four of the coaches are female and two male; one is Non-Hispanic Black, four are Hispanic (Cuban, Puerto Rican, Ecuadorian, and Venezuelan), and one is Non-Hispanic White. A total of 140 participants were enrolled to work with a DSC between January 2019 and August 2021, with 116 (82.9%) still actively working with a DSC as of September 2021.

Across all participants who signed up to work with a DSC in the Project ECHO Diabetes program between January 2019 and August 2021, 130 participants were enrolled and worked with a coach for a minimum of 1 week and a maximum of 94 weeks (approaching 2 years). A total of 2,889 participant-weeks and 1,274 encounters were documented by the six DSCs in this time (Table 2). The mean number of participant follow-up weeks was 22.2 (SD 30.1 weeks). Reasons for withdrawal were multifaceted. Some reasons

**TABLE 1** Focus Group Domains and Questions

Domain	Questions
Role of the DSC	How would you explain to someone what a diabetes support coach offers to people living with diabetes seen at spoke sites?
Value of a DSC	How would you describe the value or importance of a diabetes support coach?
Value/benefit of a DSC to self	How would you describe the value or potential benefit of being a diabetes support coach to you, personally?
Challenges for DSCs	What challenges do you face in your role as a diabetes support coach?
Challenges for people with diabetes	What are the greatest challenges the people you are working with face related to diabetes?
COVID-19	How has COVID-19 affected the people with diabetes that you serve and your role as a diabetes support coach? How has COVID-19 affected you?
Potential resources	What additional resources would help you the most in your role as a diabetes support coach?
Improving the DSC position	What can we do to strengthen or improve the diabetes support coach position in our ECHO Diabetes program?
Career trajectories	Has being a diabetes support coach changed your career goals or perspective? If so, how?
Open-ended feedback	Do you have any other feedback?

were logistical, such as moving or changing health centers, whereas other challenges included phone numbers no longer working or lack of responsiveness from coach outreach attempts. Few participants actively indicated a desire to withdraw from using a DSC.

In the 14 months preceding the COVID-19 pandemic, 401 encounters were documented, compared with 873 between March through August 2020 during the pandemic, and this uptick in utilization of DSCs during the pandemic was statistically significant (Table 2). Overall, the most common method of contacting participants (before and during the pandemic) was by phone (80% of encounters were by phone calls and texts). Although not statistically significant, during the COVID-19 pandemic months, communication shifted from 70.8 to 83.7% phone calls made to participants, with a decrease in all forms of in-person visits compared with pre-pandemic months. Also, the number of encounters that took place during clinic visits dropped during the pandemic from 16% of overall encounters pre-pandemic to only 5% during the pandemic. The length of interactions did not show a statistically significant difference in trend; however, about 10% fewer interactions lasted <15 minutes compared with pre-pandemic months.

There was a statistically significant difference in tasks conducted across nine of the 11 domains documented, with greater emphasis during the pandemic months on creating new action plans (pre-pandemic 6.5 vs. during pandemic 10.7%), discussing concerns or questions (56.6 vs. 70.1%), visit reminders (12.0 vs. 32.2%), and notification of social gatherings (hosted on virtual platforms during COVID-19) (5.2 vs. 10.3%). Table 3 summarizes tasks conducted during DSC encounters before and after the start of the pandemic, and Table 4 summarizes discussion topics. Discussion of

participants' diabetes stories more than doubled (26.7 vs. 57.7%), and discussion of DSCs' diabetes stories more than tripled (13.7 vs. 43.4%).

Similarly, there were statistically significant differences across nine of 11 documented topics discussed during coach meetings with participants during the pandemic months (Table 4). The proportion of discussions focusing on medications (51.4 vs. 67.2%), food (18.2 vs. 54.9%), exercise (6.7 vs. 49.9%), stress (13.5 vs. 52.2%), working with clinicians (9.7 vs. 30.4%), and using clinic resources (8.9 vs. 38.7%) were all greater during pandemic months. There was also a shift away from the conversation topics of A1C (32.2 vs. 10.7%), blood pressure (4.2 vs. 1.7%), and "other" topics (13.2 vs. 2.9%).

### Focus Groups

Thematic analysis of the focus group sessions indicates that DSCs view their own ability to fully understand what participants are experiencing as one of the major values of their role to the communities they serve. DSCs' ability to understand diabetes from a first-hand perspective, as well as to understand the challenges facing underserved communities, was a consistent theme in responses. Illustrative quotes of this common theme included the following.

*“So, it’s not so much of a management concern. It’s really just having someone to speak to on the same terms, who understands what they’re going through and what their hardships are. And, I mean, there’s definitely a little brainstorming and strategizing in my community, but primarily, it’s camaraderie.”*

*“I think that there’s a lot of value in . . . having someone who has diabetes and understands where you’re coming from.”*

**TABLE 2** Patient Encounters

	Overall	Pre-COVID	Post-COVID
Documented person-follow-up-weeks, total	2,889	779	2,110
Encounters: contact with the patient “this week”	1,274 (55.6)	401 (51.5)	873 (41.4)*
Communication type,* recorded	1,244	390v	854
Phone call	991 (79.7)	276 (70.8)	715 (83.7)
Clinic visit	106 (8.5)	64 (16.4)	42 (4.9)
Individual, nonmedical visit: patient home	16 (1.3)	12 (3.1)	4 (0.5)
Individual, nonmedical visit: public indoor location	88 (7.1)	21 (5.4)	67 (7.9)
Individual, nonmedical visit: public outdoor location	30 (2.4)	16 (4.1)	14 (1.6)
Zoom video call	10 (0.8)	–	10 (1.2)
E-mail	3 (0.2)	1 (0.3)	2 (0.2)
Communication type not documented in visit record form	30	11	19
Length of interaction, recorded, minutes	1,263	399	864
<15	402 (31.8)	158 (39.6)	244 (28.2)
15–30	191 (15.1)	62 (15.5)	129 (14.9)
31–45	276 (21.9)	51 (12.8)	225 (26.0)
46–60	183 (14.5)	47 (11.8)	136 (15.7)
>60	211 (16.7)	81 (20.3)	130 (15.1)
Length of interaction not documented in visit record form	11	2	9

Data are *n* or *n* (%). \*Statistically significant at predetermined value of  $\alpha = 0.05$ . Cochran Armitage test for trend utilized with length of interaction.

*“From a firsthand perspective, [the DSC] really helps patients out, to not feel alone, to feel like they can actually confide in somebody that understands them on a level that is not somebody who’s better than them, or worse than them, but on their same level.”*

*“I would like to use the word invaluable also, because, personally, I was [mis]diagnosed as a patient with type 2 diabetes [DSC actually has type 1 diabetes]. So, I was living as a type 2 patient [misdiagnosed] for quite a while. And I think, now, we have a unique opportunity to maybe identify some of those things that I went through. So, it gives us an opportunity to maybe get something that would normally not be caught in a traditional clinic setting or traditional PCP [primary care provider] setting.”*

*“I’ve had experiences where I didn’t have insurance, and I feel like I can relate to a lot of patients because of that. And, anything that I’ve been through in the past, or I’ve gone through now, it’s really easy to talk to patients and to have them open up to me because of it. So, I think it’s, like, almost invaluable.”*

*“It is very particular the way that we approach the patients because, also, we have the disease. So, we just share our stories. And that is one of the main goals for us to be the support coaches or peer support.”*

When asked to reflect on the major challenges facing diabetes communities in the FQHC setting, the DSCs repeatedly noted financial insecurities, unmet mental health needs, and health literacy as three interrelated barriers. As one DSC noted, “I feel that most of the challenges all intertwine

together, and you have all of them together at once.” Financial insecurities were noted as an obstacle to affording nutritious foods, medical care, behavioral health services, and diabetes technologies and supplies. Another theme is that people in underserved communities often do not know what resources are available to them or the potential benefits of specific technologies such as CGM. Following are sample quotes on these topics.

*“Another thing is health literacy. I think these patients need to be educated on what is available to them. Unfortunately, the doctors that they see won’t give them the options or won’t talk to them about insulin pumps, CGMs, because, ‘They can’t afford it because they don’t have the insurance,’ which I think is crazy. But these challenges all work hand in hand. And it makes it so much harder for these patients to succeed in . . . maintaining their health or improving their health.”*

*“A lot of people that I work with . . . haven’t really heard of CGM or insulin pumps.”*

*“Mental health is definitely probably a big one, just because I don’t think they prioritize that, or maybe this can go into health literacy, as well, like, understanding that mental health and diabetes kind of go hand [in hand].”*

Focus group sessions also provided DSCs the opportunity to reflect on what they liked most and least about their job. A consistent theme was that DSCs experience a powerful and personal benefit in working in their roles, as their work increases their own knowledge and social support systems. Following are some representative quotes on this theme.

**TABLE 3** Tasks Conducted During Patient Encounters

Tasks Conducted	Overall	Pre-COVID	Post-COVID	Pre- to Post-COVID P
Total patient encounters	1,273	401	872	
Agenda setting	83 (6.5)	23 (5.7)	60 (6.9)	0.4421
Follow-up on action plan	257 (20.2)	110 (27.4)	147 (16.9)	<0.0001
Create a new action plan	119 (9.4)	26 (6.5)	93 (10.7)	0.0173
Discuss concern or questions	838 (65.8)	227 (56.6)	611 (70.1)	<0.0001
Discuss patients' T1D stories	610 (47.9)	107 (26.7)	503 (57.7)	<0.0001
Discuss coaches' T1D stories	433 (34.0)	55 (13.7)	378 (43.4)	<0.0001
Upcoming visit reminder	329 (25.8)	48 (12.0)	281 (32.2)	<0.0001
Assist with paperwork	47 (3.7)	28 (7.0)	19 (2.2)	<0.0001
Alert triage nurse of provider	7 (0.6)	1 (0.3)	6 (0.7)	0.3255
Notify of T1D social gathering	111 (8.7)	21 (5.2)	90 (10.3)	0.0028
Other	98 (7.7)	48 (12.0)	50 (5.7)	0.0001

Data are n or n (%). Bold type indicates statistical significance, as determined via  $\chi^2$  testing. T1D, type 1 diabetes.

*“I also feel more empowered, for myself and my own family and for our diabetes journey.”*

*“I get to really make sure that I stay on top of these things, because I want to make sure that I’m a good role model and a good mentor for the patients that I work with . . . [I] have to walk that walk every day and make sure that I keep myself up to the standard . . . that I would want people to feel confident about.”*

*“From a selfish perspective, . . . I feel that I learned just as much and have gained just as much working with these people as probably they have gained in working with us. So often, I feel like you have all this information, all this knowledge, all this, like, ‘Oh, I want to be able to share this with someone. Who’s going to want to listen to this?’ I found it. These are my people. They*

*actually want this information. They want to hear it. They want to listen.”*

*“The learning process is not used [just] for them, but it’s also for us. And each patient or each person, each peer, bring[s] in [a] different type of lesson. From that perspective, we learn a lot of stuff not only about diabetes, but about life, and that’s [a] plus.”*

*“Because we learn . . . a little bit more . . . potentially [from] our Zoom clinics. We learn from each other as coaches. We learn from patients. We learn from providers, particularly some of the endocrinologists. So, we’re constantly assimilating information—whether we’re learning, whether we’re conducting, or whether we’re on the receiving part of a health coach training—that we leverage to assist us in helping patients. Whether we are part of the*

**TABLE 4** Discussion Topics During Patient Encounters

Topics of Patient Concerns or Questions	Overall	Pre-COVID	Post-COVID	Pre- to Post-COVID P
Total patient encounters	1,273	401	872	
Medications	792 (62.2)	206 (51.4)	586 (67.2)	<0.0001
Food	552 (43.4)	73 (18.2)	479 (54.9)	<0.0001
Exercise	462 (36.3)	27 (6.7)	435 (49.9)	<0.0001
Stress	509 (40.0)	54 (13.5)	455 (52.2)	<0.0001
A1C	222 (17.4)	129 (32.2)	93 (10.7)	<0.0001
Blood pressure*	32 (2.5)	17 (4.2)	15 (1.7)	0.0077
Cholesterol*	12 (0.9)	3 (0.8)	9 (1.0)	0.6250
Weight*	59 (4.6)	16 (4.0)	43 (4.9)	0.4557
Working with the provider*	304 (23.9)	39 (9.7)	265 (30.4)	<0.0001
Using the clinic/resources*	371 (29.2)	34 (8.9)	337 (38.7)	<0.0001
Other*	78 (6.1)	5 (13.2)	25 (2.9)	<0.0001

Bold type indicates statistical significance as determined by  $\chi^2$  testing. \*Missing data (n = 1).

*diabetes paraprofessional training, again, . . . we take that training to help assist patients, but it also helps us as well as [our role as] support coaches.”*

DSCs also reflected on the gratification that comes from helping someone else. As one noted, “I think it makes me feel fulfilled when I’m able to help somebody or just being there.” Another said, “If we are making even small improvements in people’s lives, it’s very meaningful.”

When reflecting on the challenges the DSCs face in their jobs, the burden of paperwork associated with the job was noted, as well as difficulties related to communication with spoke clinicians. However, the most common themes related to the challenges of being a DSC included psychosocial aspects of the role. The DSCs recounted feeling overwhelmed by the volume of people needing help at the spoke sites and the difficulties of getting emotionally involved as a coach. Following are representative quotes on this theme.

*“I have several providers calling me throughout the day, referring patients, and asking for help, and there’s only one me in that particular spoke site. And so then, I become a little disheartened because I’m looking at a list of patients, and I know there’s just no way I’m going to get to every single patient.”*

*“I get really emotionally involved, and it’s really hard for me not to, and so that is a very big challenge that I’ve encountered.”*

*“I’ve actually had a mentee of mine [who] passed away. Thus, I think for what we get out of this, there’s also some really heavy . . . parts to it.”*

### A1C Change

Pre-pandemic pilot data were available within a small subset population of participants with type 1 or type 2 diabetes using an MDI insulin regimen and CGM, who were working with DSCs in the Miami, FL, area at two large FQHCs (Table 5). Among the 24 adults for whom A1C data capture was feasible before and during the pandemic, 19 had type 1 diabetes, 10 were male, 12 were non-Hispanic Black, and 12 were Hispanic. Although not statistically significant, the mean 3-month A1C change among all 24 patients was  $-0.44 \pm 1.39\%$  (95% CI  $-1.03$  to  $0.15$ ,  $P = 0.1375$ ). In contrast, the mean 6-month A1C change among the 19 participants still working with a DSC was  $-1.21 \pm 1.49\%$  (95% CI  $-1.93$  to  $-0.49$ ,  $P = 0.0023$ ).

## Discussion

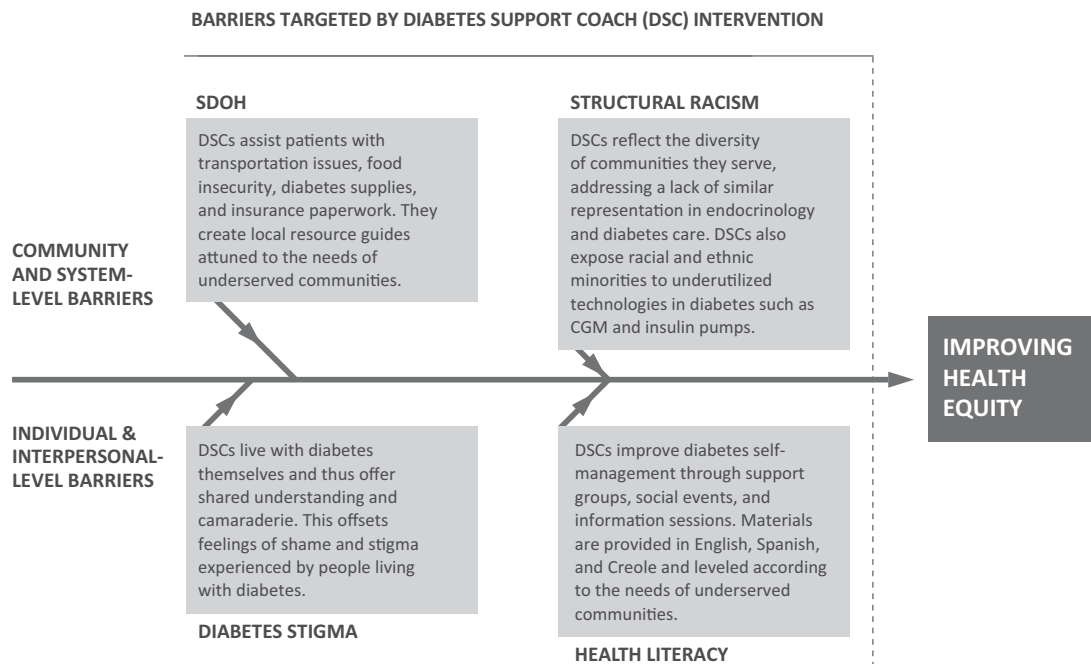
The use of DSCs in the Project ECHO Diabetes program is an intentional strategy to increase health equity for underserved people living with diabetes who are seen for routine care at FQHCs in Florida and California. Preliminary data from the Project ECHO Diabetes pilot demonstrate the potential value of this type of position in improving health outcomes and addressing complex challenges associated with structural inequalities in the United States (Figure 1). Health care professionals, especially primary care professionals in FQHCs, cannot solely address the myriad of barriers their patients face. DSCs are trusted cultural insiders, as people living with diabetes from the local geographical area. DSCs augment the work of health care professionals by providing assistance related to SDOH. Activities and materials provided by the DSCs are carefully designed according to the unique needs of socioeconomically disadvantaged communities. Social events are held during evenings and weekends at locations easily accessible by public transit. Diabetes resource guides are translated into multiple languages and include information related to food insecurity, insulin assistance programs, and local options for behavioral health services.

This type of intervention holds particular promise for increasing equity related to technology use in diabetes. Pilot data from the subset of participants working with Miami-based DSCs and receiving CGM through supply donation are preliminary; however, more comprehensive data from the stepped-wedge study design currently underway are forthcoming. Nevertheless, we posit the crucial importance of DSCs in promoting health equity for underserved communities with diabetes. DSCs themselves use CGM systems and insulin pumps and are able to share information about these devices and their value from a position of trust. DSCs deliver knowledge about CGM and insulin pumps directly to underserved communities, bypassing the need for a clinician to serve as a gatekeeper of this information.

**TABLE 5** Pilot Data for Use of DSC and CGM

3-Month Change in A1C				
<i>n</i>	Mean, %	SD, %	95% CI, %	<i>P</i>
24	-0.44	1.39	(-1.03 to 0.15)	0.1375
6-Month Change in A1C				
<i>n</i>	Mean, %	SD, %	95% CI, %	<i>P</i>
19	-1.21	1.49	(-1.93 to -0.49)	0.0023

Data are adults  $\geq 18$  years of age from two large FQHCs in Miami, FL ( $n = 24$ ); 19 had type 1 diabetes and 5 had type 2 diabetes; 12 were non-Hispanic Black and 12 were Hispanic; 14 were female and 10 were male. All A1C data presented are from the pre-pandemic period.



**FIGURE 1** Improving health equity in diabetes through diabetes support coaching.

Also, in the Project ECHO Diabetes program, DSCs can remove barriers that primary care health care providers face in getting technologies such as CGM for their patients by serving as a liaison to the expert hub team members and helping to troubleshoot industry-driven obstacles.

It is also important to note that there are challenges and limitations to the DSC role. As with any intervention, funding is needed to support and sustain these efforts. In the Project ECHO Diabetes program, the DSCs are employees of the hub teams that are located at academic medical centers, but they serve as resources for spoke sites (FQHCs external to the academic intuitions). This arrangement often presents challenges in terms of integrating the DSCs in the spoke sites (e.g., gaining access to patient health information or electronic health records) and in creating appropriate remote work monitoring plans and identified contingency protocols that appease both the academic institutions and the FQHCs.

Focus groups with DSCs also provided important insights into the challenges of working with patients and inevitably facing risk for work-related burnout, emotional labor, and compassion fatigue. To address the emotionally challenging aspects of this role, all DSCs engage in monthly enrichment sessions with professionals such as clinical health psychologists, who offer strategies to offset such challenges. Providing these types of resources is crucial when considering replication of the DSC model.

As with any intervention, it takes funding to implement the DSC program. In addition to funding for the DSCs, effective

program implementation requires oversight from trained clinical staff with the appropriate credentialing in diabetes care to ensure that protocols are followed and to provide real-time support for DSCs. That said, the cost of the DSCs and their training is much lower than the cost of an endocrinologist, diabetes clinician, or certified diabetes care and education specialist, allowing for broader replication in resource-limited settings. Thus, despite the challenges, the DSC intervention represents an innovative approach to increasing health equity for underserved communities living with diabetes by addressing structural inequalities. Combining the strengths of the CHW and peer support models, the DSC model offers a powerful tool for patient engagement and a viable mechanism for promoting health equity.

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**DUALITY OF INTEREST**

No potential conflicts of interest relevant to this article were reported.

**AUTHOR CONTRIBUTIONS**

A.F.W. contributed to the study design, oversaw study operations, and wrote the manuscript. A.A., E.S., R.L., N.C., L.B., A.B., L.F., S.W., K.H., C.A.-Z., E.F., X.R., and J.M. contributed to implementation of the DSC program, reviewed findings, and provided critical revisions to the manuscript. M.H. and D.M. helped design the study and oversaw



all study operations. S.F. and M.G. aided in study design, had access to data, and conducted data analysis. All authors have reviewed and approved this version of the manuscript. A.F.W. and D.M. are the guarantors of this work and, as such, had full access to all the data and take full responsibility for the integrity of the data and the accuracy of the analysis.

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