SPRING 2025

adces.org



IN PRACTICE

ISSN: 2633-559X

Medical Cannabis for the Treatment of **Peripheral Neuropathy**

In this issue:

- ~ People with diabetes screened for diabetes distress increases the incidence of DSMES individualization.
- The American Heart Association's PCEs and the newly emerged PREVENT Risk Calculator represent
 2 approaches to cardiovascular risk assessment and acknowledges the importance of CVD prevention across the spectrum of CKM.
- ~ ADCES DEAP Quality Coordinators share their experiences, insights and advice about the DSMES Umbrella Model
- ~ ADCES Entrepreneurship Community of Interest group shares strategies for success from DCES entrepreneurs
- Net carb calculations on food labels may not be fully accurate but it can still provide a learning point for people with diabetes to choose products that have a higher fiber content.

Propel Your Career to New Heights

Earn the most recognized credential in diabetes care and education

Certification as a Certified Diabetes Care and Education Specialist (CDCES) will:



- Demonstrate your diabetes-specific skills and expertise
- Show your commitment to excellence
- Help you distinguish yourself among health professionals
- Enhance your career opportunities and marketability

NEW! Temporary changes to the professional practice requirement relating to DCE for initial CDCES certification making it easier to earn the credential! **Learn more.**

www.cbdce.org (P) 847.228.9795



Why recommend Unifine[®] Pentips[®] Plus?

Patients prefer^{1,2} it.

Output Unifine Pentips Plus

The only pen needle **Plus** a built-in remover.

Unifine® Pentips® Plus is designed to make pen needle removal easier, safer, and more convenient¹, and is preferred by patients^{1,2}.

- Available in a broad range of sizes
- Compatible with most injection pens³
- Covered under most commercial insurance plans⁴ •

Start recommending Unifine® Pentips® Plus to your patients today!

SCAN HERE TO SEE HOW IT WORKS



1. HWR (2014) Impact of Unifine Pentips Plus on pen needle changing behavior amongst people with diabetes medicating with injectable formats. 2. Versus standard pen needle. 3. Complete compatibility information available on owennumford.com 4. Independent and chain pharmacy co-pay adjudication (April 2016). Actual coverage and co-pay may vary from setting to setting, and insurer to insurer. Data on file. WHYUPP25/OMI/0125/1/US

Owen Mumford

AND FOR FREE SAMPLES!

For more information. Visit owenmumford.com/us

Unleashing potential



Sage Campus

Sage Campus offers structured online courses that blend theory and practice, supporting all academic stages—from undergraduates to researchers aiming to publish. Our self-paced, instructor-led courses include Sage-quality content, videos, interactives, and assessments, helping users build critical skills and tackle complex issues.

Why Sage Campus?

- Master the essential skills needed to succeed in academic study, including critical thinking, navigating information, research and data science skills
- Supplement classes with high-quality resources in flipped classroom or asynchronous teaching
- Learn autonomously, building practical skills for study, research and the workplace
- Incorporate learning in your busy schedules with fully self-paced courses

Sign up for a free 30-day trial today learningresources.sagepub.com/campus



A PUBLICATION OF THE ASSOCIATION OF DIABETES CARE & EDUCATION SPECIALISTS SPRING 2025

ADCES7 TOPIC AREAS



Impact of Diabetes Distress Screening on Individualized Diabetes Self-Management Education and Support (DSMES)

JUDY CAROLINE KARIUKI, DNP, APRN-CNS, AGCNS-BC, CMSRN, EBP-C



Preventing CKM Syndrome DEBRA J REID, PHARMD, BCACP, BC-ADM,

CDCES, FADCES



A Medical Cannabis for the Treatment of Peripheral Neuropathy

JUSTIN J SHERMAN, PHARMD, MS



52 Net Carbs: What to Count? V. J. LAM, MS, RD, CNSC, CDCES, BC-ADM

ADCES PRACTICE PAPER



50 The Role of the Certified Diabetes Care and Education Specialist in Pediatric Diabetes-Type 2 Diabetes

Also in This Issue

- 6 FROM THE EDITOR
- 8 FROM THE PRESIDENT
- 40 CAREER TO CALLING

Food and an Evening Walk

SARA (MANDY) REECE, PHARMD, CDCES, BC-ADM, BCACP, FADCES, FCCP

42 DIABETES ACCREDITATION STRATEGIES

Expanding Access to DSMES: Getting Familiar with the DSMES Umbrella Model

48 ADVOCACY IN ACTION

The Sky Was Falling but We Stopped It

HANNAH MARTIN, MPH, RDN JULIA SOCKE, RDN, LDN, CDCES

52 COMMUNITIES OF INTEREST

Trailblazers in Diabetes Care: Strategies for Success from ADCES Entrepreneurs

SARAH HORMACHEA, MS, RD, CDCES, BC-ADM

56 AWARDS/MEMBERSHIP

The Power of Our Impact

LIZZY HAWK, MS, RDN, CDCES

60 TEST YOUR KNOWLEDGE

ADCES in Practice is a journal of ideas. It's a platform for diabetes care and education specialists and other health professionals to share innovations, challenges, successes, and hopes with colleagues. That's why we are excited to dedicate this page to you, our readers.

We invite you to write to us with your thoughts and impressions about articles we've published. We welcome your reactions and questions about what you've read in these pages. We call on you to comment or expand on the concepts and strategies put forth. We ask that you support or challenge our authors' words, as you see fit, and to give them the opportunity to hear and respond to you.

Our hope is for open and honest discourse that leads to improved care and outcomes for our patients. You may send your comments to adcesinpractice@gmail.com.

From Our Readers is a forum for commenting on articles published in ADCES in Practice. The length should not exceed 800 words of text with a minimal number of references. One table or figure may be included, if necessary. Any comments regarding a specific article must include the title, author(s), and date of publication. Comments that include questions or critique of a previously published paper will be forwarded to the author(s) of that article for a reply. The sharing of ideas, experiences, opinions, and alternative views is encouraged. The Editor in Chief of ADCES in Practice reserves the right to accept, reject, or excerpt letters for clarity and appropriateness of content, and to accommodate space requirements. Submissions may be sent to adcesinpractice@gmail.com

How do you get more people to read and cite your research?



EXPLAIN it in plain language



Sharf it via web, email and social media



et starte www.growkudos.com

Free service

- Quick and simple to use
- Proven to increase readership
- Keeps track of outreach wherever you do it
- Across all publications with a CrossRef DOI





A PUBLICATION OF THE ASSOCIATION OF DIABETES CARE & EDUCATION SPECIALISTS

Editor

Amy Hess Fischl, MS, RDN, LDN, BC-ADM, CDCES

Staff Liaisons and ADCES Content Editors Diana Pihos, MA Danielle McNary-Moran

About this Publication

ADCES in Practice is the official magazine of the Association of Diabetes Care & Education Specialists. It is a bi-monthly, peer-reviewed publication intended to serve as a reference source for the heart, art and science of diabetes self-management education and to provide practical tools and strategies that directly apply current research and best practices.

ADCES in Practice only publishes original articles. Prospective authors should consult the Manuscript Submission Guidelines for additional guidance: mc.manuscriptcentral.com/aip.

Access the online journal via aip.sagepub.com.

Publishing Office

Sage Publications 2455 Teller Road Thousand Oaks, CA 91320 Phone: 800.818.Sage (7243) www.sagepub.com Production Editor Manager: Divya Jyoti Munjal

Advertising Office

Sage Publications Elisabetta Palanghi Sheffield Account Executive, Commercial Sales Email: elisabetta.sheffield@sagepub.co.uk Acceptance of advertising in this publication in no way implies endorsement of the advertised product or service by ADCES or Sage. No endorsement is intended or implied. Sage and ADCES reserve the right to reject any advertising it deems as inappropriate for this publication.

ADCES Headquarters

125 S. Wacker Drive, Suite 600 Chicago, IL 60606 Phone: 312.601.4864 adces.org

ADCES in Practice (ISSN 2633-559X) (J712) is published quarterly in Winter, Spring, Summer and Fall for the Association of Diabetes Care & Education Specialists, by Sage Publications, 2455 Teller Road, Thousand Oaks, CA 91320. Send address changes to ADCES in Practice, c/o Sage Publications, 2455 Teller Road, Thousand Oaks, CA 91320.

© Copyright 2025 by the Association of Diabetes Care & Education Specialists. All rights reserved. Printed in the USA. Reproduction without specific permission is prohibited. Opinions and assertions in *ADCES in Practice* are those of the authors and are not to be construed as official or reflective of the views of the Association of Diabetes Care & Education Specialists unless so stated. Subscription Information: All subscription inquiries, orders, back issues, claims, and renewals should be addressed to Sage Publications, 2455 Teller Road, Thousand Oaks, CA 91320; telephone: 800.818.Sage (7243) and 805.499.0721; fax: 805.375.1700; e-mail: journals@sagepub.com; https://us.sagepub.com/en-us/nam/home.

Subscription Price: Institutions: \$604. For all customers outside the Americas, please visit www.sagepub.co.uk/customercare.nav for information. Claims: Claims for undelivered copies must be made no later than six months following month of publication. The publisher will supply missing copies when losses have been sustained in transit and when the reserve stock will permit. ADCES members' change of address: 125 S. Wacker Drive, Suite 600, Chicago, IL 60606. Copyright Permission: Permission requests to photocopy or otherwise reproduce copyrighted material owned by the Association of Diabetes Care & Education Specialists should be submitted by accessing the Copyright Clearance Center's Rightslink® service through the journal's Web site at aip. sagepub.com. Permission may also be requested by contacting the Copyright Clearance Center via their Web site at www. copyright.com, or via e-mail at info@copyright.com.

From the Editor



AMY HESS-FISCHL, MS, RDN, LDN, BC-ADM, CDCES

Greetings to all the rock star diabetes care and education specialists out there! What a wonderful beginning to spring! I do hope everyone is doing great, feeling well, and looking forward to season changes in your neck of the woods. I would like to introduce myself to you all-my name is Amy Hess-Fischl, and I have been a dietitian and diabetes care and education specialist practicing in outpatient diabetes centers for over 25 years. I was born and raised in the Chicagoland area, and although I have massive wanderlust-just give me an excuse to travel somewhere-I have lived in and around Chicago my entire life. I currently work in the adult and pediatric endocrinology clinic at the University of Chicago Kovler Diabetes Center, where I am fortunate to work with some amazing people with diabetes and endocrinologists, nurse practitioners, nurses, psychologists, a social worker, medical assistants, and other RDN, CDCESs. It is such a pleasure to be the new editor for ADCES in Practice.

Although I know that I have big shoes to fill given that Teresa was at the helm for 13 years, I am up for the challenge. I am so very lucky that I am not alone in this. It is my honor to be working alongside Diana Pihos, director of communications and content strategy, and Danielle McNary-Moran, marketing and communications manager. Together, we will be managing the content of the journal.

There are a few new changes to the journal. In addition to the usual content that you have come to appreciate, there will also be updates from the various ADCES departments and committees. We are working on a different approach to how the content is presented. Instead of having specific departments or columns that will be included in every issue, the content will be divided into categories based on the ADCES7 Self-Care Behaviors: Healthy Eating, Being Active, Healthy Coping, Monitoring, Taking Medication, Reducing Risks, and Problem Solving. This is in addition to content from our committees and learnings from pilot projects, continuous quality improvement projects, and suggestions on how to translate research into practice. I also plan to keep the popular Test Your Knowledge Q&A.

Here is what I need from all of you: Please let me know what you want to read about, what works for you, and what does not. Is there something missing? Does the content apply to you regardless of where you work? After all, this journal is for you. What topic areas interest you most, and what topics need to be included more? Be specific about the exact topic and if you want to write it! Did you attend a presentation and the content spoke to you? Please pass it along to me, including the presenter's name. Did you present on a specific topic and want to write about it? Bring it on! Please, don't be shy. Let me know what topics you are interested in, and we can make it happen. I am specifically interested in more content on the following topics:

 advanced nutrition skills and how to work more effectively with people who have diabetes

- · healthy coping
- behavioral health tools and resources
- diabetes education resources you use and why
- how you deal with group classes
- National Standards questions
- how you approach/assess socioeconomic status and what resources do you use
- personal experiences
- patient stories
- websites and organizations with great resources for ongoing support.

Not only are we are looking for authors, but we are looking for reviewers as well. If you are interested in reviewing articles for upcoming issues, please let me know what topics you are interested in or if you are open to anything.

Although this position is new and I have only

been involved for the past few months, I want to take the time to thank the reviewers and authors for everything that they have done since I have started. I so appreciate you responding to my emails and working so efficiently. Of course, Diana and Danielle, I cannot thank you enough for your collaborations and making it so easy to work and learn together. And I would be remiss if I did not thank you, wonderful readers. Thank you for getting up every day and working with people with diabetes and prediabetes. With your help, ADCES in Practice will continue to achieve ADCES's mission: Empower diabetes care and education specialists to expand the horizons of innovative education, management, and support. Until next time ... but keep those thoughts coming!

Email Amy at: inpractice@adces.org

Revitalizing Our Passion



President

VERONICA J. BRADY, PHD, FNP-BC, BC-ADM, CDCES, FADCES

Strengthening Connections Within ADCES

As you read this, I will have been serving as the president of ADCES for about 4 months. Can I just say that time has flown? We have experienced changes in so many areas of our lives. Changes that have impacted the way we live, work, play, eat, and so on.

Although these changes may have affected us all in different ways, some have pushed us to reconsider the things that we value—family, friends, freedom. However, despite these changes, we must maintain our focus on the things that are important to us and those that we serve. We cannot afford to waver in our commitment to ensure that people living with and affected by diabetes have the highest quality of education and resources to assist them in their day-to-day journey with diabetes.

On that note, I want to spend a few minutes talking about engagement with the organization and creating a pipeline for diabetes care and education specialists. No matter how we kick and fight against it, we are all aging. One of the benefits of aging is all the knowledge that we acquire along the way. Unfortunately, "knowledge is wasted when isn't shared" (J. M. Cornwell). To share our knowledge, we need to actively invite others into this space that we know and love. We must share with others why we are passionate about what we do. Sometimes, people need to be invited into spaces, encouraged to explore, and be made to feel welcome. As diabetes care and education specialists, we have a knack for engaging with people from various places and spaces, and it is up to us to "share the knowledge." Sharing the knowledge involves letting others know about our Association. Some pertinent things to share about our association:

- We foster an inclusive environment.
- There are awards and recognition for accomplishments.
- Opportunities exist for professional development.
- We provide networking opportunities with fun social activities, such as annual conference.

Speaking of the ADCES annual conference—in order for us to care for others, we must first care for ourselves and ensure that our needs are met. One of the ways that ADCES seeks to refresh our focus, renew our commitment, and revive our passion for the people and the roles that we hold is the annual conference.

This year, the conference will be held in Phoenix, AZ, August 8 through 11. The theme of this year's meeting is "Here We Thrive!" What does it mean to thrive? It's to grow vigorously and flourish. In these times of change, we plan to offer you opportunities to adapt, become more resilient, and flourish. We have invited speakers to make you laugh, think, and expand your horizons. This conference promises to be enlightening and engaging.

Over the next few weeks to months, I want you to seriously consider and plan to join us in Phoenix for ADCES25, our annual conference. I also want you to ponder where in the Association you would like to get involved and who you can invite to share your experience of being a member of ADCES. ■

Wishing you peace and joy in the journey.

Impact of Diabetes Distress Screening on Individualized Diabetes Self-Management Education and Support (DSMES)



An Evidence-Based Practice Pilot Project

JUDY CAROLINE KARIUKI 💿, DNP, APRN-CNS, AGCNS-BC, CMSRN, EBP-C

Diabetes is the seventh leading cause of death in the United States, with the number of adults diagnosed more than doubled in the last 20 years.¹ Currently, there are more than 122 million Americans living with diabetes, which is about 10% of the US population.¹ Diabetes also carries a substantial cost burden. According to the 2018 American Diabetes Association (ADA) report, the estimated cost of managing diabetes is about \$327 billion annually, which is 1 in 4 of all health care dollars.²

A review of the literature showed that suboptimal engagement in diabetes selfmanagement interventions was attributed to decreased self-efficacy, leading to increased diabetes-related complications.3 Bandura's selfefficacy theory assumes that behavior changes are highly associated with individual levels of self-efficacy.⁴ Although treatments for diabetes are widely studied and efficacious, these treatment regimens can be demanding for patients with diabetes, impacting patients' self-efficacy to participate in the treatment plan due to the distress associated with managing diabetes.5 When diabetes distress screening was included in the clinical setting, evidence shows that it helped lessen diabetes-related morbidity and mortality; however, diabetes distress screening is not commonly used in inpatient clinical practice.6

The concept of diabetes distress was first introduced in the literature in 1995 to describe the emotional experiences associated with the daily challenges of living with diabetes, which act as barriers to optimal self-care and diabetes self-management.⁷ Diabetes distress affects glycemic management, which further leads to increased distress and suboptimal health outcomes. Recognizing distress symptoms can help clinicians to collaborate with patients to implement interventions that improve patients' glycemic targets and overall quality of life.8 In hospitals, it is estimated that about 50% of admitted patients have diabetes as a primary or secondary diagnosis.9 Diabetes distress is, however, underestimated in about 25% of those with diabetes.¹⁰ Evidence shows that prevalence of diabetes distress increases with levels of care, with hospitalized patients at 8.9% prevalence compared to 1.2% in primary care settings.¹⁰ Routine screening for diabetes distress is therefore important, especially among hospitalized patients.

Identifying a Triggering Issue

Current practice at a tertiary, adult, Level I, acute care hospital in the Midwestern US region does not include screening patients with diabetes for distress. A needs assessment identified optimization of patient glycemic targets as a priority. Lack of diabetes distress screening was identified as a practice gap at this hospital and a contributing factor to suboptimal A1C levels due to lack of self-efficacious diabetes selfmanagement behaviors.

Of patients who presented to the hospital in December 2021 with unmanaged diabetes, 43% indicated by A1C levels of 9% or greater, prompting consults with diabetes care and education specialists (DCESs) for diabetes selfmanagement education and support (DSMES). Each patient with unmanaged diabetes received a comprehensive DSMES plan of care from a DCES at the hospital. These current practices do not align with ADA standards that recommend assessing each patient for psychosocial problems such as distress and individualizing their DSMES plan of care to include emotional support interventions with the goal to achieve individualized glycemic targets for each patient with diabetes.² Bridging this practice gap would positively impact the care provided to patients with diabetes at this hospital.

Initiating a Pilot Project

A pilot project was initiated to evaluate the impact of diabetes distress screening and individualizing DSMES to optimize glycemic targets for patients with diabetes by engaging DCESs in diabetes distress screening and evaluating patient diabetes distress levels.

The revised IOWA EBP model was used, with permission, as the guiding framework for the

project, which uses a stepwise, evidence-based practice (EBP) approach to implement research findings in clinical practice.¹¹ The setting for this pilot project was an urban, tertiary, acute care, Level 1 trauma, adult hospital in the midwestern US.

Priority of Triggering Issue

The hospital tracks quality metrics, such as glycemic index (using A1C levels) and diabetes readmissions, using a diabetes scorecard. A1C greater than 9% and diabetes readmissions are priority metrices tracked annually to ensure the hospital meets Centers for Medicare and Medicaid Services benchmarks. In fiscal year 2021, the hospital did not meet the diabetes-related hospital readmissions target of 9.4% and identified lack of diabetes distress screening as a plausible gap in clinical practice. If this practice gap is bridged, it could help achieve the targeted diabetes-related hospital readmissions benchmark of 9.4%. Patients with type 1 diabetes mellitus (T1DM) or type 2 diabetes mellitus admitted with an A1C level of 9% or greater or with diabetes-related complications were identified as the target group.

Forming a Team

An implementation team with expertise in diabetes management was formed to lead this pilot project. The project team was led by an EBP specialist who guided the team through the EBP process. The director for the diabetes department was a key stakeholder in decision-making processes and ensured the pilot project aligned with the organization's strategic priorities. DCESs served as technical experts and project change champions whose engagement was instrumental to successful implementation of this practice change at this hospital.

Appraisal and Synthesis of the Literature

The EBP specialist, with assistance from the hospital's medical librarian, conducted a review of the literature where 4 databases were searched (PubMed, CINAHL, PsycINFO, and Scopus), yielding 50 articles that were screened for relevance to the pilot project's topic. A total of 6 articles (5 Level II randomized controlled trials [RCTs] and 1 Level VI mixed-methods exploratory study) were selected for critical appraisal and synthesis of the evidence. The 5 selected RCTs were also assessed for quality and risk of bias using Cochrane Collaboration's Tool.¹²

Of the RCTs, 2 were of medium quality and evaluated the effects of small change lifestyle interventions (EMPOWER, using a peer advisor, and COMRADE, using cognitive-behavioral therapy). They found that participants in the intervention groups experienced a reduction in diabetes distress (measured using the Diabetes Distress Screening [DDS-17] tool) and significant improvement in A1C levels.¹³⁻¹⁴ Another 2 RCTs of high quality were identified. One evaluated DMSES programs delivered by community health care workers trained in patient empowerment and motivational interviewing, and the other, PLEASED intervention, provided group DSMES education and ongoing support.^{15,16} Both RCTs noted a significant reduction in A1C levels that was sustained at 18 months in the peer-led intervention group and significant decrease in diabetes distress up to 6 months using DDS-17 tool.^{15,16}

Another RCT evaluated effects of a cognitive behavioral and social problem-solving skills STEPs program on individuals with T1DM and found a significant decrease in diabetes distress in the treatment group and stabilized glycemic management postintervention.¹⁷ Lastly, a Level VI mixed-methods exploratory study of high quality evaluated an mHealth-enhanced DSMES program with peer support from community health workers and found that the intervention group experienced clinically significant reduction in diabetes distress compared to the control group, and both intervention and control groups experienced clinically meaningful reductions in A1C.¹⁸

Overall, synthesis of the evidence showed that when patients with diabetes were screened for diabetes distress using the DDS-17 tool and tailored DMSES interventions were implemented, there was an overall significant reduction in diabetes distress and A1C levels. This synthesis provided sufficient evidence to support the proposed clinical practice change at this hospital.

Piloting the Practice Change

For feasibility purposes, the team piloted the practice change in tiered phases. The first pilot phase, discussed in this article, was completed by focusing on 2 aims: (1) evaluating DCES engagement to administering the DDS-17 tool and (2) evaluating the practicability of using the DDS-17 tool to educate patients with diabetes about diabetes distress. The implementation team created a logic model that was used at each plando-study-act (PDSA) cycle as a guide during the change process.

Prior to implementing the practice change, the implementation team submitted a proposal to the hospital Nursing Evidence-Based Practice Review Committee (NEBPRC) for ethical consideration. The NEBPRC approved the proposal to implement the EBP pilot project. Permission to use the DDS-17 tool was also obtained from the original author, Dr Polonsky, prior to implementation. The original DDS-17 tool and scoring sheet created by Dr Polonsky were the instruments used in this pilot project.

Education on how to administer the DDS-17 tool was also provided by the EBP specialist to all DCESs prior to implementation. A go-live date of May 2, 2022, was set by the implementation team, with weekly meetings thereafter to address any concerns that arose in a timely manner. Patient participants were identified by DCESs through DSMES consults placed by providers for patients with unstable A1C levels or diabetes-related complications. The implementation team had mutually agreed to exclude newly diagnosed patients with diabetes during the pilot phase of the project because their perception of diabetes distress would not have reflected their experience with managing diabetes in the past month.

The project's implementation timeline was from May 2022 to August 2022. During the implementation period, DCESs reviewed DSMES consults daily and used a diabetes distress screening project checklist, created by the implementation team, to standardize the change process. The checklist provided instructions on how to introduce discussions and patient education about diabetes distress to patients. DCESs then introduced the DDS-17 tool and assisted patients with completing the tool at the bedside, allowing time for the patient to complete the tool and ask questions.

DCESs collected completed DDS-17 tools that also included the date the tool was completed and each patient's most recent A1C level. Completed DDS-17 tools were hand-delivered to the EBP specialist for evaluation each week. Comprehensive DSMES was also provided to each patient according to the organization's current practice.

The DDS-17 tool is a reliable and well-validated instrument with a Cronbach's alpha of .93.7 It is a 17-item scale that categorizes diabetes distress into 4 domains of emotional burden, regimen distress, interpersonal distress, and providerrelated distress experienced by patients over the past month.¹⁹ The mean score ranges from 1 (no distress) to 6 (serious distress). A mean score of 2 to 3 indicates moderate distress, and a mean score >3 indicates high distress that requires clinical attention.

Emotional burden is the stress, worry, and overwhelmed feeling patients experience while managing the daily demands of diabetes.¹⁹ Regimen distress is the overwhelming burden of receiving, interpreting, and responding to frequent feedback from treatment decisions, diabetes devices, and providers.⁵ Interpersonal distress refers to patients' family and friends' lack of understanding of the patients' difficulties while living with diabetes, and provider-related distress is the lack of confidence that patients have in their knowledge about diabetes or their plan of care because of unclear instructions, difficulty accessing their provider, or feeling like their provider lacks empathy.

Descriptive statistics were used to analyze

data for this pilot EBP project. Data without any protected health information (PHI) were entered in a Microsoft Excel spreadsheet by the EBP specialist, who also completed weekly chart audits of total consults and completed DDS-17 screening tools. The total number of diabetes consults was compared with the completed DDS screening tools and analyzed for staff's engagement to the new diabetes distress screening protocol. Additionally, each completed DDS-17 tool was scored using the diabetes distress domain's scoring sheet.

Additional feedback provided by patients about their distressing experiences with daily diabetes management while completing the DDS-17



Figure 1. Staff engagement to diabetes distress screening.

Note: Figure 1 shows staff engagement to diabetes distress screening each week and compares the number of consulted patients with the number of patients screened for diabetes distress.

**In weeks 7 and 9, none of the consulted patients were screened for diabetes distress.

tool were collected verbatim by DCESs, who then provided patients with emotional support interventions as part of usual care. DCESs then shared patients' feedback (without PHI) with the implementation team during weekly meetings. The team reviewed patients' feedback comments for common themes independently and as a group.

Results

A total of 83 patients with an A1C level greater than 9% were consulted for DSMES during the 13-week implementation period that the project was piloted. Of these, 16% (n = 13) were excluded from the pilot project because they were newly diagnosed patients with diabetes and the DDS-17 tool used in this pilot project assessed for diabetes distress experienced by patients over the past month. The remaining 84% (n = 70) of patients were therefore included in the pilot project. Patients' demographics were not collected during this pilot phase of the project because it would have not added meaningful data to the results and outcomes of the pilot project.

Staff engagement to screening patients for diabetes distress over the 13-week period was 73% (n = 51) of consulted patients. In 6 of the 13 weeks, all patients consulted for DSMES were screened for diabetes distress. However, in 2 of the 13 weeks (weeks 7 and 9, shown in Figure 1), none of the patients consulted for DSMES were screened for diabetes distress. Rapid PSDA cycles were implemented to address barriers to screening patients with solutions that improved adherence to screening, as shown in weeks 12 and 13, depicted in Figure 1.

Figure 2 shows the barriers to diabetes distress screening by DCESs where 100% patient screening was not achieved. Of the 27% (n = 19) of consulted patients who did not get screened for diabetes distress, 47% (n = 9) declined completing the DDS-17 screening tool, citing the length of the tool as a barrier; 26% (n = 5) had cognitive impairment that limited their ability to complete the DDS-17 tool; 16% (n = 3) were related to staffing reasons; and 11% (n = 2) of the patients had language barriers



Note: Figure 2 shows the reasons why patients consulted for diabetes self-management education and support were not screened for diabetes distress.

identified by DCESs during the initial introduction and patient assessment step of pilot project.

Figure 3 shows the levels of distress experienced by 73% (n = 51) of patients screened for diabetes distress across all 4 diabetes distress domains. The highest level of distress was experienced in the regimen domain, where 41% (n = 21) of patients experienced high levels of regimen distress and 43% (n = 22) experienced moderate levels of regimen distress. Emotional burden was the next highly distressed domain, where 39% (n = 20) of patients experienced high levels of emotional-burden-related distress and 31% (n = 16) experienced moderate distress levels related to emotional burden. About 63% (n = 32) of patients did not report experiencing interpersonal distress, and 59% (n = 30) did not experience provider-related distress.

Figure 4 shows the correlation between diabetes distress and A1C. The correlation coefficient of (r) .33 showed a positive relationship between A1C and diabetes distress. This positive correlation coefficient supported the synthesis



Figure 3. Evaluation of diabetes distress domains.

Note: Figure 3 shows the levels of distress experienced across the 4 diabetes distress domains.



Figure 4. Correlation between A1C levels and diabetes distress scores.

Note: Each dot in Figure 4 demonstrates a positive correlation between A1C and diabetes distress.

from the evidence that showed when diabetes distress levels increase, A1C levels also increase.

Discussion

The prevalence of diabetes distress and its impact on patient engagement in DSMES is underreported, which could be attributed to the lack of consistent screening of patients with diabetes for diabetes distress in clinical settings. This pilot project identified that as a gap in clinical practice and introduced an evidence-based diabetes distress screening (DDS-17) tool, which resulted in 73% (n = 51) of patients consulted for DSMES to be screened for diabetes distress.

Regimen distress and emotional burden were the 2 domains that patients experienced the highest distress in their daily self-management of diabetes. This aligned with the evidence that showed regimen distress and emotional burden were the most highly experienced distress domains. Patients who declined completing the diabetes distress screening tool (n = 19) cited the length of the tool (17 questions) and repetitious questions in the tool as reasons. These outcome data and patient preferences were helpful in guiding discussions for the next phase of the pilot project.

This pilot project showed a positive, medium correlation between diabetes distress and A1C levels, which supports the importance of screening patients for diabetes distress and individualizing DSMES to optimize glycemic management. The results of this pilot project align with the evidence in the literature showing a positive correlation between diabetes distress and low glycemic management. This data outcome will also help guide the next phase of this pilot project, where patient perspectives and preferences inform individualization of DSMES through patient-centered care. The next phase of the pilot project will therefore use the abbreviated DDS-2 tool, which screens for regimen distress and emotional burden and has a strong correlation coefficient (r = .89).²⁰

Feedback provided by patients who scored high (mean score 3 or higher) in their diabetes distress screening, related to the challenges they experienced in their daily diabetes selfmanagement, were extracted for common themes. Dietary challenges, inconsistent glucose checks, missed insulin doses, and financial challenges related to lack of or fixed income were the common themes identified. These common themes were related to regimen distress and emotional burden, which supports the evidence in the literature. The next pilot project phase will therefore focus on implementing the abbreviated DDS-2 tool, which focuses on these two highly distressed domains: regimen distress and emotional burden.

Strengths

The use of PDSA cycles was a project strength that led to high staff engagement to screening patients for diabetes distress. PDSA cycles are used to test proposed changes during the pilot phase of project implementation.²¹ For example, a PDSA cycle implemented during project implementation identified process barriers to screening that were mitigated through staff reeducation on reframing conversations with patients to help motivate patients who felt overwhelmed by the length and repetitive questions in the DDS-17 tool. Another PDSA cycle included utilization of translated DDS-17 tools when assessing diabetes distress in patients who did not speak or write in English as their primary language. These translated DDS-17 tools were also used with permission from the original author, Dr Polonsky.

Another strength of the project was the use of DCESs as change champions and subject matter experts, who had a significant role in identifying barriers and facilitators to diabetes distress screening. Successful teams are those that use their expertise collaboratively to improve quality of patient care.²²

In addition, the inclusion of patient preferences in the early stages of the project phases aligns with the evidence that patient self-efficacy and perceptions toward barriers that impede their engagement in optimal diabetes selfcare behaviors should be considered in clinical practice. The organization's current practice uses a comprehensive DMSES plan, thus individualizing DSMES to mitigate diabetes distress and increase patient self-efficacy in diabetes self-management behaviors. Next steps will include individualizing patient DSMES plans of care to include evidencebased interventions that mitigate diabetes distress related to regimen distress and emotional burden.

Limitations

This was a small, localized practice change project at an individual hospital and was not designed to produce generalizable knowledge; therefore, number of participants and setting should be considered alongside the results.

Implications for Practice

The 2022 Merit-based Incentive Payment System (MIPS) lists diabetes as a top ranked quality and

patient safety measure, with the goal to nationally decrease A1C levels to 7%. This project aligned with MIPS initiatives by aiming to individualize DSMES action plans to reduce diabetes distress and improve glycemic management. The evidence shows that decreasing diabetes distress in patients with unstable diabetes (A1C greater than 9%) leads to an increase in self-efficacious diabetes management, which can decrease A1C levels.

ADA highlights the importance of screening patients for distress and individualizing care plans to optimize glycemic management.² This impacts the Institute for Healthcare Improvement's (IHI) triple aims of reducing health care costs through optimal glycemic targets, which prevents avoidable hospital readmissions and improves overall population health for patients with diabetes.²³ Implementing this pilot project in the hospital's urban (downtown) location allows for individualized, evidence-based care availability to an underserved patient population, a population health initiative that aligns with ADA and IHI's mission to decrease disease burden for underserved patients through implementation of EBPs that incorporate patient values.

Integrating and Sustaining Practice Change

The next steps to sustain the project will be to improve screening of patients with unstable diabetes or diabetes complications from 73% to 100% by educating bedside nurses and providers to screen patients on admission using the abbreviated DDS-2 tool. A positive diabetes distress screen will prompt a consult to a DCES for further patient assessment. DCESs will then administer the complete DDS-17 tool during their consultation with patients who screen positive for diabetes distress. Implementing the DDS-17 tool at this point will help identify specific indicators and perceptions of patient's diabetes distress to individualize DSMES interventions and develop specific, measurable, achievable, realistic, and timely (SMART) action plans collaboratively with patients.

To further assist with individualizing DSMES

plans of care, the next pilot project steps will also introduce problem-solving therapy (PST): an evidence-based, structured interventional approach that encourages patients with unstable diabetes, through clinician support, to identify and implement SMART goals tailored to distress needs.²⁴ Use of PST in the project's next steps will be a new process for this organization.

Transition-of-care (TOC) leaders and behavioral health specialists (BHSs) will be included to the implementation team in the next phase of the pilot project to ensure PST is implemented successfully. Patients' referral to a TOC manager will help identify and alleviate regimen-distressing barriers, such as lack of resources (income, access, etc), that may be impacting patients' regimen distress. Patients with high levels of emotional burden will be referred to a BHS to develop a plan that positively impacts patients' self-efficacy to implement DMSES interventions. Evidence shows linking those patients with appropriate care resources that address needs that impact DSMES is a positive precursor to optimal diabetes distress and A1C levels.25

Lastly, the next pilot project phase will include newly diagnosed patients with diabetes who were excluded during the pilot phase. The inclusion of newly diagnosed patients with diabetes aligns with the recommendations from the Diabetes Distress Assessment and Resource Center that added newly diagnosed patients among those who are prone to experience diabetes distress.²⁶

Conclusion

Diabetes distress is a central construct related to self-care identified in the literature as challenging and one that affects patients' diabetes self-care and glycemic management. Suboptimal self-care in patients with diabetes has been associated with low glycemic management and increased rates of diabetes-related complications. Identifying factors associated with suboptimal diabetes self-care is important in the clinical setting and individualizing DSMES interventions geared to optimizing patients' glycemic targets.

Screening for diabetes distress using an

evidence-based screening tool, such as the DDS-17 tool, is recommended by the ADA to help identify patients at risk for suboptimal diabetes self-care. Through this pilot project, patients consulted for DSMES were screened for diabetes distress with the goal to individualize their DSMES, which is a best practice recommendation.

Next project steps will focus on implementing an abbreviated DDS-2 tool to screen patients for regimen distress and emotional burden. A positive screen will prompt timely consults to DCESs, who will further assess patients' distressing needs and use PST skills to assist patients with developing SMART goals and action plans collaboratively. Referrals to BHS and TOC managers based on patients' highest distressing needs will be utilized as needed to support patients in optimizing their glycemic targets.

Judy Caroline Kariuki, DNP, APRN-CNS, AGCNS-BC, CMSRN, EBP-C, is with the OhioHealth Grant Medical Center in Columbus, OH.

Acknowledgments

Barbara Alenik, MSN, RN, NEA-BC, diabetes department director, OhioHealth Grant Medical Center; Teresa Wood, PhD, RN, NEA-BC, nurse scientist, OhioHealth Grant Medical Center; Eileen Werdman, DNP, APRN-CNS, associate professor, University of Cincinnati.

Declaration of Conflicting Interests

The author declares having no professional or financial association or interest in an entity, product, or service related to the content or development of this article.

Funding

The author declares having received no specific grant from a funding agency in the public, commercial, or not-for-profit sectors related to the content or development of this article.

Judy Caroline Kariuki () https://orcid. org/0009-0009-0916-1904

REFERENCES

1. Centers for Disease Control and Prevention. National diabetes statistics report. 2020. Accessed January 29, 2022. https://

www.cdc.gov/diabetes/data/statistics-report/index.html

2. American Diabetes Association. Economic costs of diabetes in the U.S. in 2017. *Diabetes Care*. 2018;41(5):917-928. doi:10.2337/dci18-0007

3. da Rocha RB, Silva CS, Cardoso VS. Self-care in adults with type 2 diabetes mellitus: a systematic review. *Curr Diabetes Rev.* 2020;16(6):598-607. doi:10.2174/157339981566619070 2161849

4. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev.* 1977;84(2):191-215. doi:10.1037//0033-295x.84.2.191

5. Tanenbaum ML, Kane NS, Kenowitz J, Gonzalez JS. Diabetes distress from the patient's perspective: qualitative themes and treatment regimen differences among adults with type 2 diabetes. *J Diabetes Complications*. 2016;30(6):1060-1068. doi:10.1016/j.jdiacomp.2016.04.023

6. Sav A, King MA, Whitty JA, et al. Burden of treatment for chronic illness: a concept analysis and review of the literature. *Health Expect.* 2015;18(3):312-324. doi:10.1111/hex.12046

7. Polonsky WH, Fisher L, Earles J, et al. Assessing psychosocial distress in diabetes: development of the diabetes distress scale. *Diabetes Care*. 2005;28(3):626-631. doi:10.2337/diacare.28.3.626

8. Balfe M, Doyle F, Smith D, et al. What's distressing about having type 1 diabetes? A qualitative study of young adults' perspectives. *BMC Endocr Disord*. 2013;13:25. doi:10.1186/1472-6823-13-25

9. Wilson M, Chen HS, Wood M. Impact of nurse champion on quality of care and outcomes in type 2 diabetes patients. *Int J Evid Based Healthc*. 2019;17(1):3-13. doi:10.1097/ XEB.00000000000156

 Kuniss N, Kramer G, Müller UA, Wolf G, Kloos C.
 Diabetes related distress is high in inpatients with diabetes.
 Diabetol Metab Syndr. 2021;13(1):40. doi:10.1186/ s13098-021-00659-y

 Iowa Model Collaborative, Buckwalter KC, Cullen L, et al.
 Iowa Model of Evidence Based Practice. *Worldviews Evid Based Nurs.* 2017;14(3):175-182. doi:10.1111/wvn.12223

12. Higgins JP, Altman DG, Gøtzsche PC, et al. The Cochrane Collaboration's tool for assessing risk of bias in randomized trials. *BMJ.* 2011;343:d5928. doi:10.1136/bmj. d5928

13. Cummings DM, Lutes LD, Littlewood K, Solar C, Hambidge B, Gatlin P. Impact of distress reduction on behavioral correlates and A1C in African American women with uncontrolled type 2 diabetes: results from EMPOWER. *Ethn Dis.* 2017;27(2):155-160. doi:10.18865/ed.27.2.155

14. Lutes LD, Cummings DM, Littlewood K, et al. COMRADE: A randomized trial of an individually tailored integrated care intervention for uncontrolled type 2 diabetes with depression and/or distress in the rural southeastern US. *Contemp Clin Trials.* 2018;70:8-14. doi:10.1016/j.cct.2018.04.007

15. Tang TS, Funnell M, Sinco B, et al. Comparative effectiveness of peer leaders and community health workers in diabetes self-management support: results of a randomized controlled trial. *Diabetes Care*. 2014;37(6):1525-1534. doi:10.2337/ dc13-2161

16. Tang TS, Funnell MM, Sinco B, Spencer MS, Heisler M. Peer-Led, Empowerment Based Approach to Self-Management Efforts in Diabetes (PLEASED): a randomized controlled trial in an African American Community. *Ann Fam Med*. 2015;13(suppl 1):S27-S35. doi:10.1370/afm.1819

17. Hood S, Irby-Shasanmi A, de Groot M, Martin E, LaJoie AS. Understanding diabetes related distress characteristics and psychosocial support preferences of urban African American adults living with type 2 diabetes: a mixed-methods study. *Diabetes Educ.* 2018;44(2):144-157. doi:10.1177/0145721718754325

Presley C, Agne A, Shelton T, Oster R, Cherrington A.
 Mobile-enhanced peer support for African Americans with type
 2 diabetes: a randomized controlled trial. J Gen Intern Med.
 2020;35(10):2889-2896. doi:10.1007/s11606-020-06011

19. Giese KK. The emotional burden of diabetes: a look at diabetes distress. *Nurse Pract.* 2018;43(8):23-27. doi:10.1097/01.NPR.0000541470.61913.1c

20. Fisher L, Glasgow RE, Mullan JT, Skaff MM, Polonsky WH. Development of a brief diabetes distress screening instrument. *Ann Fam Med.* 2008;6(3):246-252. doi:10.1370/afm.842

21. Institute for Healthcare Improvement. Model for improvement: IHI 2022. Accessed July 6, 2022. https://www.ihi.org/ resources/Pages/HowtoImprove/default.aspx

22. Ezziane Z, Maruthappu M, Gawn L, Thompson EA, Athanasiou T, Warren OJ. Building effective clinical teams in healthcare. *J Health Organ Manag.* 2012;26(4-5):428-436. doi:10.1108/14777261211251508

23. Institute for Healthcare Improvement. The IHI triple aim: IHI 2022. Accessed September 27, 2022. https://www.ihi.org/ Engage/Initiatives/TripleAim/pages/default.aspx

24. Pierce D, Gunn J. Using problem solving therapy in general practice. *Aust Fam Physician*. 2007;36(4):230-233.

25. Bober T, Rothenberger S, Lin J, Ng JM, Zupa M. factors associated with receipt of diabetes self-management education and support for type 2 diabetes: potential for a population health management approach. J Diabetes Sci Technol. 2023;17(5):1198-1205. doi:10.1177/19322968231176303

26. Diabetes Distress Assessment & Resource Center. Learn about diabetes distress. 2017. Retrieved September 28, 2022. https://diabetesdistress.org/learn-about-dd

PREVENTing CKM Syndrome

DEBRA J. REID 🝺, PHARMD, BCACP, BC-ADM, CDCES, FADCES

The American Heart Association (AHA) recently introduced a new acronym, CKM (cardiovascularkidney-metabolic) syndrome, to highlight the significant overlap between cardiovascular, renal, and metabolic diseases.¹ Metabolic diseases, including obesity, type 2 diabetes, and chronic kidney disease (CKD), can damage nearly every organ system, including the heart. Individually, each of these conditions is associated with substantial morbidity and mortality. Furthermore, the conditions frequently coexist, multiplying the odds of developing cardiovascular diseases (CVDs), including heart failure (HF), atrial fibrillation, coronary artery disease, stroke, and peripheral artery disease.

Cardiovascular Risk Assessment

Cardiovascular risk calculators play a pivotal role in clinical practice by providing a systematic and evidence-based method for assessing an individual's risk of developing heart disease. These tools enable health care professionals to make informed decisions about preventive strategies, personalized treatment plans, and lifestyle interventions. By translating complex clinical and social data into a tangible risk estimate, risk calculators empower individuals to actively participate in their health care and make informed choices regarding lifestyle modifications, medication use, and overall cardiovascular health management.

The integration of risk calculators into routine clinical practice helps bridge the gap between evidence-based guidelines and individualized patient care, fostering a more personalized and proactive approach to CVD prevention. This aligns with the broader shift toward precision medicine, where health care interventions are tailored to an individual's unique risk profile, ultimately leading to more effective and targeted preventive measures.

As the landscape of cardiovascular risk assessment continues to evolve with advancements in technology and research, these calculators remain indispensable in the broader context of preventive medicine, emphasizing the importance of early identification and



management of cardiovascular risk factors in improving overall public health.

Pooled Cohort Equations

The inception of the pooled cohort equations (PCEs) for atherosclerotic CVD risk involved a rigorous and evidence-based process led by the AHA and the American College of Cardiology (ACC). Introduced in 2013, the PCEs were created to provide a more contemporary and personalized approach to estimating an individual's 10-year risk of atherosclerotic CVD (ASCVD) for individuals ages 40 to 79.

The equations were derived from data obtained from several major cohort studies, including the Framingham Heart Study, Atherosclerosis Risk in Communities Study, Cardiovascular Health Study, and Coronary Artery Risk Development in Young Adults Study.² The development process involved statistical modeling and analysis to identify key risk factors contributing to ASCVD. The final equations incorporated factors such as age, sex, race, total cholesterol, high-density lipoprotein cholesterol, systolic blood pressure, diabetes status, and smoking history. By leveraging data from these large cohorts, the PCEs sought to enhance the accuracy and relevance of cardiovascular risk assessment.²

Improving the PCE Model

The PCEs have proven to be a tremendous asset in patient care, as evidenced by their widespread integration into clinical practice guidelines, yet the landscape of cardiometabolic care has changed substantially over the past decade. Tobacco use continues to decline, use of antihypertensive agents is more widespread, and lipid goals recommended by the guidelines have become increasingly more aggressive.³ The changing prevalence of these cardiovascular risk factors in today's population suggests that the cohort that the PCEs were studied in may no longer be representative of today's patient, resulting in an overestimation of ASCVD risk. An additional limitation of the PCEs is the inclusion of only White and Black races.

Today, there is a desire for new risk markers of CVD to be incorporated into a risk assessment tool to further enhance its accuracy. Epidemiological evidence substantiates strong connections between CKM risk markers, such as CKD and diabetes, and the occurrence of total CVD and specific subtypes, including ASCVD and HF.⁴

The PREVENT Calculator

Given the rising prevalence of poor CKM health among US citizens, the incorporation of metabolic and CKD markers into a new risk assessment tool, PREVENT, plays a role in optimizing its accuracy and relevance to today's population. The base model of the PREVENT tool includes estimated glomerular filtration rate, and optional add-ons to the model include urine albumin-creatinine ratio (UACR), A1C, and social risk.

Features of the PREVENT Risk Calculator include the following.

CKM Health Markers

A number of epidemiologic studies have elucidated the relationship between CKD and CVD. Alarmingly, the association is so strong that individuals with CKD are more likely to face mortality from a cardiovascular event than from worsening kidney function.⁵ Estimated glomerular filtration rate (eGFR) is a parameter that is widely available in clinical settings and has been newly included as a predictor in the base model of the PREVENT risk assessment. Inclusion of eGFR aligns with the holistic approach to CKM health as a broader framework for prevention given novel therapies that simultaneously target cardiovascular and kidney outcomes.

In an effort to capture the additional CVD risk posed by dysglycemia, A1C can be used as an input into the model. Because A1C is not routinely assessed for those without diabetes, the PREVENT tool was developed with this feature as an optional input to be used for those with and without diabetes when these data are available. Additionally, a robust association between elevated UACR and CVD led to the inclusion of UACR as a novel predictor. However, a similar rationale was applied to UACR as A1C in that it is considered an optional parameter because UACR screening rates are low despite recommendation by the American Diabetes Association and Kidney Disease Improving Global Outcomes for annual albuminuria screening in those with diabetes or CKD.² In the AHA's statistical analysis of PREVENT, these add-on CKM features improved calibration among individuals with CKD to a statistically significant degree.² A1C and UACR should be included in the risk calculation when the data are clinically indicated and available because their utility may enhance the tool's discrimination of CVD risk.

HF

The rise in mortality rates among CVD subtypes has been notably more pronounced for HF compared to heart disease of atherosclerotic origin. HF stands as the predominant cause of hospitalization among individuals older than 65, and its prevalence is steadily increasing across all age groups.⁶ The concerning trends in mortality, hospitalizations, prevalence, and incidence of HF underscore the imperative to prioritize primary prevention efforts. Expanding the PREVENT risk assessment tool to include HF is particularly beneficial specifically in populations with poor CKM health, among whom risk for HF is relatively greater than risk for ASCVD.⁵

Race-Free Equations

In developing the PREVENT models, the AHA removed race as an input to the calculator. This decision aligns with the growing consensus in medicine to eliminate the use of race from clinical algorithms, acknowledging that racism, rather than race itself, shapes societal and individual experiences, correlates with adverse social determinants of health (SDOH), and significantly contributes to unfavorable CVD outcomes.

To capture the influence of SDOH on cardiovascular outcomes, the PREVENT calculator includes a social deprivation index (SDI) as an add-on input. The SDI provides a zip-codespecific surrogate measure of SDOH and considers a variety of characteristics, including percentage living in poverty, percentage with <12 years of formal education, percentage of single-parent households, percentage living in rental properties, percentage of households without a car, and percentage of unemployed adults <65 years old.² Although this is a crucial first step in the effort to represent the impact of SDOH, it is important to recognize that these place-based measures do not necessarily encapsulate an individual's experiences with key social drivers.

Early Intervention and Lifetime Risk Assessment

The PREVENT equations allow for accurate and precise estimations of both short-term and long-term CVD risk among adults ages 30 to 79. Whereas the PCEs are rated for 10-year risk assessment, PREVENT offers both 10-year and 30-year assessments.² This approach broadens the scope of prevention efforts, facilitating interventions across a wider age range and enabling earlier interventions in younger adults.

Despite the generally low absolute 10-year or short-term risk in young adults, even in the presence of moderately elevated risk factor levels or established CVD risk factors, such as hypertension and diabetes, there is a substantial risk over the long term. Relying solely on shortterm risk assessments may falsely reassure individuals with low short-term risk who actually have a high lifetime risk.³ Consequently, incorporating lifetime risk considerations can guide more intensive modification of risk factors at an earlier stage in life, potentially maximizing the efficacy of preventive strategies.

Conclusion

The AHA's PCEs and the newly emerged PREVENT Risk Calculator represent 2 approaches to cardiovascular risk assessment, each with slightly different considerations. The AHA's PCEs have been widely integrated into clinical practice, providing a straightforward and well-established tool for estimating 10-year cardiovascular risk. However, its reliance on historical data and limited inclusion of additional risk factors may hinder its ability to adapt to evolving health landscapes.

In contrast, the PREVENT Risk Calculator brings a contemporary perspective to cardiovascular risk that is not only more equitable but also incorporates a more extensive set of risk factors. In particular, the inclusion of parameters that reflect CKM health offers a more comprehensive risk assessment given the complex interplay of obesity, diabetes, CKD, and cardiovascular health.

Although refinement of quantitative cardiovascular risk assessment will continue to be an evolving process, PREVENT provides an important follow-up to the PCEs that acknowledges the importance of CVD prevention across the spectrum of CKM. The base model calculator can be accessed on the AHA website at https://professional.heart.org/en/guidelines-andstatements/prevent-calculator. Add-on models incorporating A1C, UACR, and social risk are currently under development.

Debra J. Reid, PharmD, BCACP, BC-ADM, CDCES, FADCES, is with Northeastern University in Boston, MA.

Acknowledgment

The author would like to acknowledge the valuable contributions of Haley Frey, PharmD, for drafting the article.

Declaration of Conflicting Interests

The authors declare having no professional or financial association or interest in an entity, product, or service related to the content or development of this article.

Funding

The authors declare having received no specific grant from a funding agency in the public, commercial, or not-for-profit sectors related to the content or development of this article.

Debra J. Reid 🝺 https://orcid.org/0000-0001-8966-3502

REFERENCES

1. Ndumele CE, Rangaswami J, Chow SL, et al.; on behalf of the American Heart Association. Cardiovascular-kidney-metabolic health: a presidential advisory from the American Heart Association. *Circulation*. 2023;148:1606-1635. doi:10.1161/ CIR.000000000001184

2. Khan SS, Matsushita K, Sang Y, et al. Development and validation of the American Heart Association PREVENT equations. *Circulation*. 2024;149:430-449. doi:10.1161/CIRCULATIONAHA.123.067626

3. Khan SS, Coresh J, Pencina MJ, et al. Novel prediction equations for absolute risk assessment of total cardiovascular disease incorporating cardiovascular-kidney-metabolic health: a scientific statement from the American Heart Association. *Circulation*. 2023;148:1982-2004. doi:10.1161/CIR.000000000001191

4. Yadlowsky S, Hayward RA, Sussman JB, McClelland RL, Min YI, Basu S. Clinical implications of revised pooled cohort equations for estimating atherosclerotic cardiovascular disease risk. *Ann Intern Med.* 2018;169:20-29. doi:10.7326/M17-3011

5. Gansevoort RT, Correa-Rotter R, Hemmelgarn BR, et al. Chronic kidney disease and cardiovascular risk: epidemiology, mechanisms, and prevention. *Lancet*. 2013;382:339-352. doi:10.1016/S0140-6736(13)60595-4

6. Agarwal MA, Fonarow GC, Ziaeian B. National trends in heart failure hospitalizations and readmissions from 2010 to 2017. JAMA Cardiol. 2021;6:952-956. doi:10.1001/ jamacardio.2020.7472



Medical Cannabis for the Treatment of Peripheral Neuropathy

JUSTIN J. SHERMAN, PHARMD, MCS

Peripheral neuropathy, the most prevalent chronic complication of diabetes, often results in pain, tingling, and numbness in the extremities.¹ Traditional treatment medications, in many cases, can yield suboptimal therapeutic results or significant adverse effects. Medical cannabis, through its effect on the endocannabinoid system, may offer additional treatment options in the future.² The purpose of this article is to discuss an overview of medical cannabis, the categories of current products, overall chronic pain research, and the current research for peripheral neuropathy in patients with diabetes. The benefits and challenges for incorporating medical cannabis into an ongoing treatment regimen for a case study will also be explored.

Traditional Treatment Options

Current medication options aim to manage pain and improve function.³ Only 3 are approved by the Food and Drug Administration (FDA) for this indication: duloxetine, pregabalin, and tapentadol. Anticonvulsants like gabapentin and pregabalin modulate abnormal electric activity in the nerves but can cause side effects, such as weight gain and dizziness. Antidepressants including serotonin-norepinephrine reuptake inhibitors (SNRIs) and tricyclic amines (TCA) are also prescribed. The norepinephrine components of duloxetine and venlafaxine, both SNRIs, help with pain relief. Of these aforementioned medications, duloxetine, pregabalin, and gabapentin are often considered first line.

Other medications include a TCA, amitriptyline, which is limited by side effects such as dry mouth, constipation, and blurry vision—especially in older patients.³ Although opioids and opioid-like medications, such as tapentadol, could be used, long-term use is associated with dependency, tolerance, and a range of other side effects. Topical treatments, such as 8% capsaicin patches and 5% lidocaine patches, can provide localized relief but may not address pain effectively in all cases. Despite these options, many with neuropathy continue to experience significant pain and discomfort. This has led researchers to

CASE STUDY

A 62-year-old woman, Mrs F, is a new patient who complains, "My feet feel like a million bees stinging them." Mrs F has experienced a sharp and shooting pain in both feet, mostly at night, for the past year. She stopped seeing her previous provider due to not being able to resolve the issue. She states, "This is my most critical problem."

Her past medical history is significant for diabetes, hypertension, chronic obstructive pulmonary disease (COPD), gastroesophageal reflux, and hypothyroidism. Fortunately, all disease states are controlled, with the exception of diabetes. Her current A1C is 10.4%. On neurologic examination, vibratory sensation is absent over most of both feet. She also has significant loss of protective sensation per monofilament exam. Laboratory results rule out other causes of neuropathy.

Current medications for neuropathy include pregabalin 300 mg daily and duloxetine 60 mg daily, both titrated from starting doses. She tried gabapentin, but dizziness caused her to stop taking it. She tried capsaicin patches and valproic acid with no relief. She states that a friend smokes cannabis for her diabetes pain and that it helps her friend. Mrs F is not open to smoking cannabis but would be for an oral product.

explore alternative treatments, including medical cannabis.⁴

Overview of Cannabis and the Endocannabinoid System

"Cannabis" refers to all products from the Cannabis sativa plant, whereas the term "marijuana" refers to only products that contain high concentrations of Delta-9-tetrahydrocannabinol (THC).⁵ Over 107 different cannabinoids have been identified from this plant. The main cannabinoids are THC and cannabidiol (CBD). By acting as an agonist on cannabinoid (CB) 1 and 2 receptors, THC is thought to have beneficial effects on pain but also cause euphoria at higher concentrations. The CB1 receptors are mainly in the brain and central nervous system, and CB2 receptors are expressed in peripheral tissues and immune cells.² By modulating receptors in the immune system, THC may help with neuropathic pain by reducing nerve inflammation and altering pain perception. The cannabinoid CBD when given in combination with THC may enhance a possible therapeutic effect and attenuate the euphoric effects of THC.²

Three Categories of Cannabinoid Medicines

Synthetic THC pharmaceuticals approved by the FDA in 1985 include dronabinol (Marinol) and nabilone (although only available in the United States by its brand name, Cesamet).⁶⁷ These medications are available in capsule form and are considered Schedule III and II, respectively. Syndros is a liquid formulation of dronabinol approved in 2016.⁸ All 3 synthetic THC medications are approved for the treatment of nausea and vomiting associated with cancer chemotherapy. Both forms of dronabinol are approved, additionally, to treat anorexia associated with weight loss in patients with acquired immunodeficiency syndrome or positive for the human immunodeficiency virus.

Phytocannabinoid-dense botanicals, from which medical cannabis is derived, include the *Cannabis sativa, indica,* and *ruderalis* plants.⁹ *Cannabis sativa* has a high concentration of THC and low concentration of CBD, and the *indica* plant has a higher concentration of CBD to THC. The *ruderalis* plant contains very little THC. Although THC products are considered Schedule I, production of and use of CBD products is legal federally as long as such products contain less than 0.3% THC. Of note, the Drug Enforcement Agency proposed a rule recently to reschedule cannabis from Schedule I to Schedule III, but as of this writing, a final rule has not been issued.¹⁰

Cannabidiol oil (Epidiolex) was FDA approved in 2018 for treatment of rare seizure disorders in children, Lennox-Gastaut syndrome and Dravet syndrome.¹¹

Evidence for Chronic Pain

Almost half of the states in the United States now allow the use of medical cannabis. Chronic pain in all its forms, including neuropathy, is one of the most consistent qualifying conditions. Thus, it is prudent to be aware of research evidence in this area. A systematic review published by the National Academies of Sciences, Engineering, and Medicine in 2017 stated that cannabis or cannabinoids are effective for treating chronic pain in adults.¹² After reviewing 35 randomized controlled trials (RCTs), the authors stated that the evidence is conclusive or substantial.

Other reviews by Whiting et al¹³ in 2015 and Nugent et al¹⁴ in 2017 each stated that the RCTs they reviewed included \geq 30% pain reduction for the cannabinoid group than with placebo. Whiting et al¹³ recommended that those studies give moderate quality evidence of support, and Nugent et al¹⁴ recommended that their evidence is limited to alleviation of neuropathic pain with insufficient evidence for other types of pain.

A *Cochrane Review* published in 2018 stated that cannabis-based medications were better than placebo for substantial and moderate pain relief.¹⁵ However, this review of 16 RCTs suggested that a variability in individual responses and side effects limits the benefits, which may be outweighed by the harms. The American Society of Pain and Neuroscience in 2023 gave medical cannabis use for the treatment of neuropathic pain evidence a level 1 with a grade of C, suggesting that additional large-scale RCTs are needed.¹⁶ Of note, the neuropathic pain in all of the aforementioned reviews was not associated with just diabetes but with several conditions from which neuropathy can arise.

Review of Studies for Neuropathic Pain in Participants With Diabetes

At the time of this writing, 4 studies have been conducted regarding the use of medical cannabis for the treatment of peripheral neuropathy solely in participants with diabetes.¹⁷⁻²⁰ None have recently been published, however, with a publication date ranging from 2010 to 2015. The journals publishing these studies have impact factors ranging from 4.6 to 16.2. Three of the studies are designed as placebo-controlled, randomized, double-blinded trials, and 2 of those are crossover studies. Although one has an open-label design, it is a follow-up study for an unpublished RCT that can be found on the ClinicalTrials.gov website.²¹ Pertinent information for these 4 studies can be found in Table 1.

Regarding methodology, the average age of participants ranged from 56.9 to 62.2 years, and

all used pain scores as the primary outcome. The interventions used include: three arms of low, medium, and high dose of vaporized THC (one study),¹⁷ a one-to-one combination product containing THC and CBD in a sublingual spray (two studies),^{18,20} and nabilone (one study).¹⁹ The lengths of these studies ranged from eight weeks to forty weeks.

Overall, 275 participants total were included in the final analyses of the studies, shown in Table 2. Three of the studies showed a statistical significance, and 1¹⁸ did not. The Selvarajah et al¹⁸ study researchers performed a post hoc analysis and discovered that participants with depression were more likely to have higher (ie, worse) baseline pain scores regardless of being in the control or treatment group. Also, participants with depression were more likely to show greater improvement by the study's end regardless of group. The authors also noted that a large placebo effect could have also confounded the results.

Of the studies showing statistical significance, the study using vaporized THC displayed pain reduction with the 4% arm (approximately 16 mg) versus placebo, the 1% arm had no effect, and the 7% arm resulted in an increase of pain scores.¹⁷ In contrast, the study using nabilone found that all participants using 4 mg, the highest dose, had a reduction in pain intensity of at least 30%.¹⁹ Clinically meaningful pain reduction is considered to be either at least a 30% reduction in pain, or a reduction of 2 points on a 0 to 10 numerical visual analog scale, which was achieved by participants taking nabilone versus placebo.

The Hoggart et al²⁰ study by far had the largest number of participants and study duration. In this study, the THC/CBD combination resulted in improved pain scores within the first 4 weeks versus placebo. These pain score differences were maintained over the rest of the 10-month study. Of note, the authors stated that participants achieving pain relief were taking an average of 6.6 sprays sublingually daily, which was approximately 17 mg of THC. Also, participant use of adjunctive analgesics for neuropathy was tracked in this **Table 1** Review of Studies for Neuropathic Pain in Participants With Diabetes.

	Wallace et al ⁷ (2015)	Selvarajah et al¹8 (2010)	Toth et al ¹⁹ (2012)	Hoggart et al ²⁰ (2015)
Design	Randomized, double-blind, placebo control, crossover	Randomized, double-blind, placebo control, crossover	Parallel-group, double-blind, placebo-controlled, 4-wk single- blind flexible nabilone dose phase followed by double-blind maintenance phase	Open-label, follow-on study following a clinical trial
Average age, y	56.9	56.3	62.2	59.1
Female, %	44	38	46	40
Intervention	Low (1% THC), medium (4% THC), or high (7% THC)	THC 27 mg/mL and CBD 25 mg/ mL sublingually, divided 4 × per day	Nabilone 1 to 4 mg/d	Each spray THC/CBD spray delivered 2.7 mg THC and 2.5 mg CBD to maximum of 8 sprays/3 h
Comparator	Placebo	Placebo	Placebo	Noncomparative
Primary outcome	Pain score	Pain score	Pain score	Pain score
Primary pain scale	Visual analog scale	Neuropathic pain scale	Visual analog scale	Numerical rating scale
Intervention length	4 sessions every 2 wk	Dose titrated × 2 wk, then 10- wk maintenance phase	4-wk single-blind phase, then 5-wk double-blind phase	38 wk with 2-wk titration period to allow for dosing optimization

Abbreviations: CBD, cannabidiol; THC, tetrahydrocannabinol (THC).

Table 2 Analysis of studies in Table 1.

	Wallace et al ¹⁷ (2015)	Selvarajah et al ¹⁸ (2010)	Toth et al ¹⁹ (2012)	Hoggart et al ²⁰ (2015)
No. participants enrolled	31	38	51	298
No. participants included	16	29	37 in single-blind phase; 26 in double-blind phase	204
How reported?	Tested in front of provider	Pain diary and neuropathic pain scale	Pain diaries, questionnaires, clinical assessments	Clinician survey
Average baseline pain intensity	6.7	67 (Sativex); 63 (placebo)	5.4	6.9
Pain reduction				
Placebo	-2.07	-11.7	-1.1	N/A
Cannabis	-3.14	-15.5	-3	-2.7
Statistical significance	P < .001	P = .62	P < .05	P < .05

study, and the authors noted no significant increase over the course of the study. The authors suggested that this finding corroborates that addition of medical cannabis yielded the positive results. However, this study had several limitations. No placebo group was compared in this study with the treatment. Also, a 23% dropout rate occurred, but not due to efficacy. Adverse effects of dry mouth, blurry vision, and dizziness accounted for most of the dropouts. Future studies should involve only participants with peripheral neuropathy due to diabetes. Also, they should be large RCTs of significant duration with a comparator group of traditional medications for neuropathy and should account for other analgesic medications being used.

Table 3 Considerations for Cannabis Use.

Cannabis Use Disorder	Cannabis Withdrawal Syndrome	
At least ≥2 of the following is experienced within a 12-mo period:	At least ≥3 of the following signs and symptoms could develop within approximately 1 wk after cannabis cessation:	
Taken in larger amounts or over a longer period than was intended	Irritability, anger, or aggression	
A persistent desire or unsuccessful efforts are made to	Nervousness or anxiety	
cut down/control use Great deal of time is spent in activities to obtain, use,	Sleep difficulty (eg, insomnia, disturbing dreams)	
or recover from cannabis effects	Decreased appetite or weight loss	
Recurrent use results in a tailure to tultill major role obligations at work school, or home	Restlessness	
Use continues despite persistent or recurrent social	Depressed mood	
interpersonal problems caused by or exacerbated by	Substantial distress or impairment	
the effects of cannabis	1 of the following physical symptoms, causing	
Important social, occupational, or recreational	substantial discomfort:	
activities are given up/reduced due to use	Abdominal pain	
Cannabis use recurs in situations in which it may be physically hazardous	Shaking/tremors	
Cannabis use continues despite knowledge of a	Sweating	
persistent or recurrent physical or psychological	Fever	
problem likely to have been caused or exacerbated	Chills	
by use	Headache	
Craving or a strong desire or urge to use cannabis		
Tolerance		
Withdrawal		
Note: 2-3 of these should be characterized as mild, 4-5 as moderate, and >6 is severe cannabis use disorder	Note: The clinician should resolve that there is no other explanation for symptoms. Symptoms generally resolve in 7-14 d but may persist for weeks.	

Cannabis Cons

Common adverse effects include dizziness, confusion, changes in mood, disorientation, euphoria, hallucinations, somnolence, and asthenia.² Cannabis is also associated with impaired short-term memory, motor coordination, and judgment. Due to slowing reaction time, many states do not allow operation of a motor vehicle when taking medical cannabis. Although not as much is known regarding use of vaporized cannabis, smoking cannabis cigarettes can increase symptoms of chronic bronchitis and increase the risk of respiratory tract infections. Long-term use of high doses can be especially harmful for teenagers because it is associated with problems with brain development and reduced intelligence quotient scores.

Furthermore, THC is metabolized by the cytochrome P450 enzyme systems CYP3A4 and CYP2C9.22 Concentrations of THC have been shown to double when used with ketoconazole, a common antifungal medication that inhibits CYP3A4 enzymes. Other inhibitors of this enzyme system include erythromycin (and other macrolide antibiotics) and verapamil (antihypertensive medication), which could potentially increase THC concentrations as well. Fluoxetine (antidepressant) and amiodarone can inhibit CYP2C9 enzymes and also potentially increase THC concentrations. Additive effects can occur with THC, such as increasing risk for tachycardia when given with anticholinergic medications and causing depression of the central nervous system when used in conjunction with alcohol and opioids. If using medical cannabis, patients should be followed for possible cannabis use disorder, which is a pattern of cannabis use leading to clinically significant impairment or distress.²³ If use has been heavy and prolonged, those patients should be followed for cannabis withdrawal syndrome if use is abruptly stopped. For criteria for these conditions, see Table 3.

Discussion: Back to the Case Study

Mrs F's neuropathy continues to significantly affect her quality of life, and traditional therapies have not provided enough relief. An open shared conversation between provider and patient could result in the patient wanting an add-on trial of medical cannabis. We describe the pros and cons of such a decision in the following.

Pros and Possible Choices

- Chronic pain is one of the most common qualifying conditions among states that allow medical cannabis, and significant research has been conducted in this area.
 Three of 4 studies involving only participants with peripheral neuropathy resulting from diabetes have yielded positive results.
- Three other traditional medications have been tried with either no effect or stopped due to adverse effects. Pregabalin and duloxetine have been titrated up to relatively high doses but still have not resulted in maximum pain relief. If doubling the dose of each does not provide further relief or adverse effects occur, medical cannabis could be used as an adjunct third-line choice.
- If medical cannabis were selected, it may be prudent not to select an inhaled form because Mrs F has COPD. Although less is known about the vaporized form, other inhaled formulations may worsen symptoms of COPD. Nabilone may be a possible choice, used off-label, and titrated up to the 4 mg dose per day. It is interesting that 2 studies found efficacy with approximately 16 to 17 mg THC on average, 1 with the vaporized form of THC only and 1 with the THC and CBD 1:1 combination in a sublingual form. It would be prudent to start low and titrate slowly, such as 1 to 2 mg daily and doubling the dose regimen every 1 to 3 weeks until the patient found significant pain relief. The target dose regimen would ideally be consistent with the studies, and the provider should provide very close follow-up with the patient.

Cons

 Medical cannabis, at the time of this writing, is still schedule I.

- More quality RCTs are needed, including a large number of participants, a significant length of time to show longitudinal pain relief, and a comparator group using traditional medications for neuropathic pain. Also, studies ideally would be designed to show functional improvement and pain relief.
- Mrs F is an older patient with significant comorbidities.
- Adverse effects of medical cannabis and drug interactions would need to be closely monitored, and a slow titration would be recommended. Development of cannabis use disorder would need to be monitored while using for therapy, and cannabis withdrawal syndrome would need to be monitored if therapy was stopped abruptly.
- Federal regulatory oversight for medical cannabis is lacking.
- Medical cannabis is relatively expensive, and many insurance companies do not cover the costs.

Conclusions

Treating peripheral neuropathy in patients with diabetes can be difficult even with multiple traditional medications at higher dose regimens. Medical cannabis presents a promising yet evolving therapeutic option. Although some early studies present encouraging results, wellconducted, large-scale RCTs are needed to fully understand the parameters of such use, including which cannabinoids/combinations would be most effective, dosing, long-term efficacy, and potential adverse effects to avoid. Health care providers are always considering a tailored approach that satisfies individualized needs for pain management. Medical cannabis may, with further research, prove to be a valuable tool in this area.

Justin J. Sherman, PharmD, MCS is an Associate Professor of Pharmacy Practice at the University of Mississippi School of Pharmacy in Jackson, MS.

Declaration of Conflicting Interests

The author declares no financial association in any product related to the content or development of this article.

Funding

The author has not received any funding related to the content or development of this article.

REFERENCES

 American Diabetes Association Professional Practice Committee. Retinopathy, neuropathy, and foot care: Standards of Care in Diabetes – 2024. *Diabetes Care*. 2024;47(suppl 1):S231-S243.

2. Modesto-Lowe V, Bojka R, Alvarado C. Cannabis for peripheral neuropathy: the good, the bad, and the unknown. *Cleve Clin J Med.* 2018;85(12):943-949.

3. Pop-Busui R, Ang L, Boulton AJM, et al. Diagnosis and treatment of painful diabetic peripheral neuropathy. American Diabetes Association. Published February 2022. Accessed September 2, 2024. doi:10.2337/db2022-01. https://www. ncbi.nlm.nih.gov/books/NBK580224/

4. Cavalli E, Mammana S, Nocoletti F, et al. The neuropathic pain: an overview of the current treatment and future therapeutic approaches. *Int J Immunopathol Pharmacol.* 2019;33. doi:10.1177/2058738419838383

5. National Center for Complementary and Integrative Health. Cannabis (marijuana) and cannabinoids: what you need to know. U.S. Department of Health and Human Services. Accessed September 3, 2024. https://www.nccih. nih.gov/health/cannabis-marijuana-and-cannabinoidswhat-you-need-to-know#:~:text=The%20word%20 %E2%80%9Ccannabis%E2%80%9D%20refers%20 to,amounts%20of%20tetrahydrocannabinol%20(THC)

6. Dronabinol [package insert]. Abb Vie Inc.; 2017.

7. Nabilone [package insert]. Valeant Pharmaceuticals International; 2006.

8. Syndros (dronabinol) [package insert]. Benuvia Therapeutics Inc.; 2020.

9. Al-Khazaleh AK, Zhou X, Bhuyan DJ, et al. The neurotherapeutic arsenal in *Cannabis sativa*: insights into antineuroinflammatory and neuroprotective activity and potential entourage effects. *Molecules*. 2024;29:410. doi:10.3390/ molecules29020410

10. Schultz J, Alderman JH, Desantis R. Canabis and the law: the DEA's rule to reschedule cannabis to schedule III: process and timeline. Accessed September 4, 2024. https://foleyhoag. com/news-and-insights/blogs/cannabis-and-the-law/2024/ may/the-dea-s-rule-to-reschedule-cannabis-to-schedule-iiiprocess-and-timeline/

11. Cannabidiol oral solution [package insert]. Greenwich Biosciences, Inc.; 2018.

12. National Academies of Sciences, Engineering, and Medicine. The health effects of cannabis and cannabinoids: the current state of evidence and recommendations for research. National Academies Press. Accessed August 29, 2024. https:// www.ncbi.nlm.nih.gov/books/NBK423845/

 Whiting PF, Wolff RF, Deshpande S, et al. Cannabinoids for medical use: a systemiatic review and meta-analysis. JAMA. 2015;313(24):2456-2473.

14. Nugent SM, Morasco Bj, O'Neil ME, et al. The effects of cannabis among adults with chronic pain and an overview of general harms: a systematic review. *Ann Intern Med.* 2017;167:319-331.

15. Mucke M, Phillips T, Radbruch L, et al. Cannabis-based medicines for chronic neuropathic pain in adults. *Cochrane Database Syst Rev.* 2018;3(3):CD012182.

16. Strand N, D'Souza RS, Karri J, et al. Medical cannabis: a review from the American Society of Pain and Neuroscience. *J* Pain Res. 2023;16:4217-4228.

 Wallace MS, Marcotte TD, Umlauf A, et al. Efficacy of inhaled cannabis on painful diabetic neuropathy. *J Pain*. 2015;16(7):616-627.

18. Selvarajah D, Gandi R, Emery CJ, et al. Randomized placebo-controlled double-blind clinical trial of cannabis-based medicinal product (Sativex) in painful diabetic neuropathy. *Diabetes Care.* 2010;33:128-130.

19. Toth C, Mawani S, Brady S, et al. An enriched-enrollment, randomized withdrawal, flexible-dose, double-blind, placebocontrolled, parallel assignment efficacy study of nabilone as adjuvant in the treatment of diabetic peripheral neuropathic pain. *Pain.* 2012;153:2073-2082.

20. Hoggart B, Ratcliffe S, Ehler E, et al. A multicentre, openlabel, follow-on study to assess the long-term maintenance of effect, tolerance and safety of THC/CBD oromucaosal spray in the management of neuropathic pain. J Neurol. 2015;262:27-40.

21. NCT00710424. A study of Sativex for pain relief due to diabetic neuropathy. Accessed September 6, 2024. https:// www.clinicaltrials.gov/study/NCT00710424?cond=nct00710 424&term=cannabis&rank=1

22. Antoniou T, Bodkin J, Ho J. Drug interactions with cannabinoids. CMAJ. 2020;192(9):E206. doi:10.1503/cmaj.191097

23. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. American Psychiatric Publishing; 2013.



TUNE IN TO OUR PODCAST, THE HUDDLE!

ADCES' podcast **"The Huddle: Conversations with the diabetes care team"**, provides perspectives, issues and updates in diabetes care. Featuring episodes covering advances in diabetes technology, how to recognize and address bias, the importance of personalizing care, and much more, this podcast aims to help inform your practice and elevate your role. New episodes are available twice a month on <u>our website</u>, <u>Simplecast</u>, <u>Apple</u> <u>Podcasts</u>, <u>Spotify</u>, <u>Amazon Music</u> and <u>YouTube</u>. Make sure to follow the show on your platform of choice to stay up to date!



Scan the QR code to listen to our latest episodes.

NET CARBS What to Count?

V. J. LAM (D, MS, RD, CNSC, CDCES, BC-ADM

The rising prevalence of obesity and type 2 diabetes has led consumer interest in lowcarbohydrate diets (LCDs) to surge. LCDs, as defined by the National Institutes of Health, have no more than 130 g of carbohydrate per day or less than 26% of daily calories from carbohydrates.

A growing body of evidence has linked LCDs to weight loss, reduced cardiovascular risk, and improved lipid profiles. This has led to increased consumer demand for low-carbohydrate food products.

In response, food manufacturers started marketing products with claims regarding

"net carbs," which is different from the total carbohydrate noted in nutrition labels. For example, a snack bar may have 30 g of total carbohydrate per bar and contain 4 g of net carbs.

But what exactly are net carbs? Where did they come from, and more importantly, why do they matter?

Carbohydrate Nutrition Guidelines

The 3 main types of carbohydrate are (1) sugar, (2) starch, and (3) fiber. "Total carbohydrate," as reported on nutrition labels, represents a combination of all 3 types of carbohydrate in the food. Each gram of carbohydrate is assumed to contain 4 calories. However, not all carbohydrates are created equal. Simple carbohydrates, such as sugar, are digested easily and absorbed quickly, providing a short-term burst of energy, as seen in postprandial blood glucose spikes. Conversely, complex carbohydrates, such as starch and fiber, are digested more slowly than simple carbohydrates. Starch provides long-term energy, and fiber serves as a bulking agent.

Due to individual differences in age, medical history, dietary preferences, and physical activity level, there are no set daily requirements for carbohydrate intake. The American Diabetes Association (ADA) recommends choosing whole grains and nutrient-dense carbohydrate foods over refined and processed carbohydrate foods, including those with added sugars. The Dietary Guidelines for Americans 2020-2025 and the American Heart Association advise limiting added sugars to at most 10% and 6% of daily caloric intake, respectively.

Carbohydrate Counting: A Quick Recap

Carbohydrate counting helps with meal planning and blood glucose management for people with diabetes (PWD). It remains a safe and effective method in reducing A1C levels without increasing hypoglycemia risk in both adult and pediatric populations. In addition, it allows greater individualization and flexibility regarding dietary choices. Continuing education in carbohydrate counting is important to improve or maintain precision when estimating intake.

When using a nutrition label in basic carbohydrate counting, the main items to pay attention to are (1) serving size and (2) total carbohydrate.

PWD may also exhibit individual responses to different carbohydrate-containing foods. For some PWD, advanced carbohydrate counting may be taught to achieve target postprandial glucose levels. It also aims to further increase the precision of quantifying carbohydrate intake by requiring additional calculations involving fibers and sugar alcohols.

The Fiber Rule

Fiber is a complex carbohydrate that maintains gut health, increases satiety, and acts as a bulking agent. It is usually categorized into 2 types: (1) insoluble and (2) soluble. Both insoluble and soluble fibers are beneficial in managing constipation and improving digestion. Additionally, soluble fibers have been shown to lessen postprandial blood glucose spiking and reduce cholesterol levels.

In practice, the fiber rule is variable across institutions and between health care practitioners. Some practitioners subtract all or half the grams of dietary fiber from the grams of total carbohydrate, whereas others prefer implementing the fiber rule only if the product contains at least 5 g of dietary fiber per serving.

A myriad of benefits regarding a high fiber intake has been well established over the years, including risk reduction for several chronic diseases, including type 2 diabetes, obesity, gastrointestinal diseases, and some cancers. The Dietary Guidelines for Americans 2020-2025 currently recommend individuals consume at least 14 g of fiber per 1000 calories (equal to 28 g of fiber for 2000 calories).

Studies have shown that as little as 5% of the population is estimated to meet the daily fiber requirement. When looking at fiber in nutrition labels, US Food and Drug Administration (FDA) regulations state a product can be labeled as a "good source" when it has a minimum of 2.5 g or 10% of the daily value of fiber per serving; an "excellent source" has at least 5 g or 20% of the daily value of fiber per serving.

The Sugar Alcohol Rule

Sugar alcohols, or polyols, are frequently added in sugar-free or low-sugar products as a low-calorie sweetener or bulking agent. Small amounts of sugar alcohols occur naturally in some fruits and vegetables, although most are commercially manufactured. Examples of manufactured sugar alcohols include xylitol, mannitol, erythritol, and sorbitol. Many sugar-free chewing gums contain sugar alcohols in place of sugar because they are not associated with tooth decay.

It is estimated that about half of the sugar in sugar alcohols will be absorbed; therefore, the sugar alcohol rule is to subtract half of the sugar alcohol content from the total carbohydrate per serving. For example, a product may contain 30 g of total carbohydrate and 14 g of sugar alcohols per serving, which results in 23 g of digestible carbohydrate.

The ADA recommends eating sugar alcohols in moderation because of high amounts being associated with a potential rise in blood glucose levels and gastrointestinal adverse effects, such as bloating, gas, and osmotic diarrhea. Different types of sugar alcohol can exhibit different glycemic responses, which may be clinically significant if consumed in large amounts. Also, unlike some artificial sweeteners with zero calories, sugar alcohols contain a small number of calories as they are partially digested and absorbed by the body. Per the FDA, a gram of sugar alcohol consists of 0 to 3.0 calories depending on the type.

What Are Net Carbs?

The main concept behind net carbs is that some carbohydrates are indigestible and not metabolized by the body and therefore can be excluded. Manufacturers often use the term "net carbs" to claim a minimal impact on the consumer's blood glucose.

Manufacturers calculate net carbs by subtracting indigestible carbohydrates, such as fiber, sugar alcohols, allulose, and glycerin, from the total carbohydrate on the nutrition label. However, this calculation assumes all subtracted carbohydrates to be nondigestible and an insignificant source of calories, which may not be the case. One such example would be soluble fibers, which are fermented into short chain fatty acids and then absorbed by gut microbiota and colonic cells. Therefore, they are still an indirect energy source for the body. In fact, the FDA's nutrition labeling regulations designate all soluble fibers (except polydextrose) to contain 2 calories per gram.

Low Carb, Reduced Carb, and Carb Free

The terms "low carb," "reduced carb," and "carb free" are categorized as "nutrient content claims" by the FDA, and there are currently no legal definitions regarding the amount of carbohydrate required for such claims, unlike for "low calorie" or "fat free.

The lack of scrutiny on the use of these terms makes it challenging for health care professionals and consumers to determine the accuracy of the claims. Furthermore, the type of fiber and sugar alcohol in the product are often not specified by manufacturers, because it is not mandatory, making it challenging for practitioners and consumers to conclude how blood glucose levels may be impacted. This holds particularly true for PWD taking insulin because either underestimation or overestimation can result in postprandial hyperglycemia or hypoglycemia, respectively.

The FDA does regulate total carbohydrate on nutrition labels and therefore recommends all consumers to refer to this value rather than net carbs or other nutrient content claims.

What About Sweeteners?

Sweeteners are nonnutritive sugar substitutes that have grown in popularity among manufacturers as a low-calorie yet intensively sweet-tasting alternative to sugar. The FDA has approved 6 artificial sweeteners as food additives: (1) aspartame, (2) acesulfame potassium, (3) sucralose, (4) neotame, (5) advantame, and (6) saccharin.

The safety of artificial sweeteners has been heavily debated in recent years. Some past studies, including a recent review by Iizuka, have demonstrated benefits in managing oral health, diabetes, and weight; however, there has been growing evidence that suggests potential links between artificial sweeteners and increased risk of several chronic diseases, including cardiovascular disease and cancer.

In response, plant-derived sweeteners have been introduced as a more "natural" replacement to sugar and its artificial counterparts. Examples include allulose, monk fruit, and stevia. Plantderived sweeteners are recognized as safe for consumption by the FDA, and they contain almost no calories because they are excreted either by the gastrointestinal tract or in the urine.

No safety levels for plant-derived sweeteners have been officially established; however, the ADA 2024 Standards of Care do allow nonnutritive sweeteners to be "consumed in moderation." Due to the minimal caloric value, artificial and plant-derived sweeteners are not included in the carbohydrate counting process.

Implications for Practice

The term "net carbs" is increasingly used among food manufacturers to advertise the "actual" amount of fully digestible carbohydrate in their products. The calculation for net carbs by food manufacturers may not be fully accurate based on their assumptions regarding nondigestible carbohydrates; however, it can still provide a learning point for PWD to try and choose products that have a higher fiber content and therefore a lower net carb value. It is also important to encourage PWD to choose products with highquality carbohydrates that are rich in fiber, vitamins, and minerals and low in added sugars, sodium, and fat.

Total carbohydrates remains the focus when counting carbohydrates, as recommended by both the FDA and ADA. Regular monitoring of postprandial blood glucose levels can also be useful in determining the need for individualized education. Health care practitioners may consider providing advanced carbohydrate counting education with the fiber and sugar alcohol rules to enhance precision in achieving target postprandial blood glucose levels.

V. J. Lam, MS, RD, CNSC, CDCES, BC-ADM, is with Huntington Health Physicians in Pasadena, CA.

Declaration of Conflicting Interests

The authors declare having no professional or financial association or interest in an entity, product, or service related to the content or development of this article.

Funding

The authors declare having received no specific grant from a funding agency in the public, commercial, or not-for-profit sectors related to the content or development of this article.

V. J. Lam 🝺 https://orcid.org/0009-0000-6674-6647

REFERENCES

American Diabetes Association. Get to know carbs. Accessed June 14, 2024. https://diabetes.org/food-nutrition/ understanding-carbs/get-to-know-carbs

American Diabetes Association Professional Practice Committee. 5. Facilitating positive health behaviors and well-being to improve health outcomes: standards of care in diabetes—2024. *Diabetes Care*. 2024;47(Suppl 1):S77-S110.

American Heart Association. Added sugars. Accessed July 26, 2024. https://www.heart.org/en/healthy-living/ healthy-eating/eat-smart/sugar/added-sugars

Evert AB, Dennison M, Gardner CD, et al. Nutrition therapy for adults with diabetes or prediabetes: a consensus report. *Diabetes Care.* 2019;42(5):731-754. doi:10.2337/dci19-0014

lizuka K. Is the use of artificial sweeteners beneficial for patients with diabetes mellitus? The advantages and disadvantages of artificial sweeteners. *Nutrients.* 2022;14(21):4446. doi:10.3390/nu14214446

Oh R, Gilani B, Uppaluri KR. *Low-Carbohydrate Diet.* StatPearls Publishing; 2024.

US Department of Agriculture, US Department of Health and Human Services. Dietary guidelines for Americans, 2020-2025. 9th ed. December 2020. Accessed November 20, 2024. https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf

US Food & Drug Administration. Code of federal regulations Title 21. Accessed June 13, 2024. https://www.accessdata. fda.gov/scripts/cdrh/cfdocs/cfcfr/cfrsearch.cfm?fr=101.9



The Role of the Certified Diabetes Care and Education Specialist in Pediatric Diabetes

Type 2 Diabetes

AMY POETKER, MS, RDN, CDCES

Type 2 diabetes (T2D) in youth is a growing pediatric health concern. Once thought to be a condition limited to adulthood, the number of children and teens with T2D has steadily increased over the past 20 years along with the number of children and teens that are overweight or obese,¹ and projections using SEARCH database estimate that the number of people with T2D under the age of 20 will quadruple in the next 20 years.¹² Like adults, T2D in youth occurs across all populations but disproportionately impacts youth of color and lower socioeconomic status.

Accurate diagnosis of T2D is crucial to the child receiving appropriate treatment. In practice, type 1 diabetes (T1D) should be presumed until a T2D diagnosis is confirmed to reduce the risk of escalation of glucose and potentially diabetesrelated ketoacidosis. Generally, a T2D diagnosis can be confirmed by the absence of insulin autoantibodies.³

This is the second in a series of 3 articles that highlight the updated practice paper titled "The Role of the Diabetes Care and Education

Specialist in Pediatric Diabetes Regardless of Etiology."

Treatment

Best-practice guidelines for treating youth with T2D continue to evolve as more research becomes available. In fact, since the time of publication of "The Role of Diabetes Care and Education Specialist in Pediatric Diabetes Regardless of Etiology" practice paper, another glucagon-like peptide receptor agonist (dulaglutide) and a sodium-glucose cotransporter 2 inhibitor (empagliflozin) have received FDA approval in patients ages 10 and up. The recent additions expand "on-label" pharmacotherapy options for youth with T2D to a total of 4 classes insulin, metformin, glucagon-like peptide receptor agonist, and sodium-glucose cotransporter 2 inhibitor.²

Initial treatment of T2D in youth should address blood glucose management and management of comorbidities, such as obesity, dyslipidemia, hypertension, and other



microvascular complications.²⁻⁴ Glucose targets for youth with T2D are the same as those for youth with T1D.^{3,4} Treatment recommendations include lifestyle interventions, including healthy diet and regular physical activity, and medications as indicated by A1C level and comorbidities.²⁻⁴ T2D lifestyle interventions should be family based because the child/adolescent will not have total autonomy regarding food choices or access to physical activity.

It is recommended that all newly diagnosed youth with T2D, regardless of therapy, monitor glucose before meals and at bedtime until they achieve reasonable glucose levels.⁴ Frequency of glucose monitoring can then be individualized based on diabetes care regimen and whether glycemic goals have been achieved.

Dietary recommendations for youth with T2D align with pediatric weight management evidence-based nutrition practice guidelines focusing on healthy eating principles and emphasize increasing intake of nutrient-dense foods while decreasing intake of nutrient-poor foods—especially sugar-sweetened beverages.⁵ Working with the family to develop healthy eating plans that are affordable, moderate in portions, and personally acceptable is especially important.

Physical activity should be encouraged to decrease sedentary behavior. Youth with T2D and their families would benefit from education about the positive impact of regular physical activity on glucose management, insulin resistance, and weight management. Youth with T2D should be encouraged to participate in at least 60 minutes of moderate to vigorous physical activity per day and strength training at least 3 days per week.2-4 Activity may be completed in shorter segments throughout the day. Also, nonacademic screen time should be limited to 2 hours per day to help reduce sedentary time.³ Families may need guidance and support for starting an exercise routine or tips for incorporating more physical activity into their daily lives. Education about exercise safety should also be provided, especially if insulin therapy is required.

Outcomes

Early data about the long-term outcomes for youth with T2D is alarming. T2D in youth appears to be much more aggressive than T2D in adults with a more rapid decline in beta cell function and earlier onset of diabetes-related complications.³ This worrisome evidence coupled with the rising incidence of youth with T2D serves as an urgent call to action for diabetes care professionals to expand research, intensify prevention efforts, and invest in treatment approaches to improve long-term management strategy options for this vulnerable population.

Diabetes Care at School and at Home

Like youth with T1D, youth with T2D should have medical management plans, 504 plans, or individualized education programs in place to ensure their safety at school. Age-specific considerations for youth with T2D are like those described for their same-age peers with T1D—such as school environment challenges, peer relationships, independence and selfmanagement, risk-taking behaviors, body-image concerns, and safe transition to adult care.

Because youth-onset T2D rarely occurs before puberty and impacts vulnerable populations at a higher rate, youth patients with T2D are often adolescents living in homes with many competing priorities. Adolescents with T2D may be spending a lot of time at home alone and become responsible for their own diabetes care a significant amount of time. The diabetes care and education specialist (DCES) and medical team should be sure to have discussions with the teen and their family about the importance of caregiver support and work with each family to identify realistic ways adults can support the teen in diabetes care while meeting other responsibilities. Discussions about age-appropriate care and developmentally appropriate decisionmaking might also be helpful to ensure realistic expectations.

Role of the DCES

All youth with T2D, their parents or guardians, and other care providers should receive

comprehensive, individualized diabetes selfmanagement education and support (DSMES) that is culturally sensitive. DSMES should occur at diagnosis; once a year for continued assessment of education, nutrition, and emotional support needs; when new complicating factors arise that impact self-management; and when transitions in care occur.

Initial and ongoing DSMES for youth-onset T2D should focus on an agreed-on nutrition and activity plan, the safe administration of prescribed medications, and glucose monitoring as needed with the option of a continuous glucose monitor or insulin pump when appropriate.³⁴ Caregivers of youth with T2D also need to understand how to interpret home glucose monitoring data for daily decision-making and to identify when an adjustment in therapy may be needed.

Throughout the education process and through the stages of the child's life, the DCES should be considerate of the challenges youth with T2D often face that could impact their ability to follow through with recommended medical care, such as unstable housing, food insecurity, safe spaces to engage in physical activity, financial strains on the household, and transportation barriers. The DCES must tailor DSMES to the needs of the patient and their family and be well versed in support services and resources whether within their institution or within the broader community to help families overcome barriers to ensure the best possible outcomes.

Additionally, children and teens with T2D frequently have a family history of T2D and may already be familiar with other family members' experiences with diabetes. This can positively or negatively affect how the teen views diabetes management or how empowered they feel about their care and ability to impact their outcomes. Including the child or teen in age-appropriate conversations reinforcing the power of good selfmanagement and individual decision-making may help to foster habits that will put the child in the best possible position to minimize future diabetesrelated complications. Managing diabetes requires daily engagement to achieve agreed-on goals and glucose targets. The DCES should provide self-management education in a nonjudgmental way and provide a safe space for open communication to help youth with T2D and their families successfully navigate the challenges of managing T2D and any comorbid conditions.

Amy Poetker MS, RDN, CDCES, is with Cincinnati Children's Hospital Medical Center in Cincinnati, OH.

Declaration of Conflicting Interests

The authors declare having no professional or financial association or interest in an entity, product, or service related to the content or development of this article.

Funding

The authors declare having received no specific grant from a funding agency in the public, commercial, or not-for-profit sectors related to the content or development of this article.

REFERENCES

1. Lawrence JM, Divers J, Isom S, et al.; SEARCH for Diabetes in Youth Study Group. Trends in prevalence of type 1 and type 2 diabetes in children and adolescents in the US, 2001-2017. JAMA 2021;326:717-727.

2. American Diabetes Association Professional Practice Committee. 14. Children and adolescents: Standards of Care in Diabetes—2024. *Diabetes Care*. 2024;47(suppl 1):S258-S281. doi:10.2337/dc24-S014

3. Shah AS, Zeitler PS, Wong J, et al. ISPAD clinical practice consensus guidelines 2022: type 2 diabetes in children and adolescents. *Pediatr Diabetes*. 2022;23(7):872-902. doi:10.1111/pedi.13409

4. American Diabetes Association. 14. Children and adolescents: Standards of Medical Care in Diabetes — 2022. *Diabetes Care.* 2022;45(suppl 1):S208-S231. doi:10.2337/dc22-S014

5. Smart CE, Annan F, Higgins LA, Jelleryd E, Lopez M, Acerini CL. ISPAD clinical practice consensus guidelines 2018: nutritional management in children and adolescents with diabetes. *Pediatr Diabetes*. 2018;19(suppl 27):136-154. doi:10.1111/ pedi.12738

Food and an Evening Walk

SARA (MANDY) REECE, PHARMD, CDCES, BC-ADM, BCACP, FADCES, FCCP

My professional journey was initially heavily influenced by my dad's recommendation to pursue pharmacy. He thought becoming a pharmacist was a great option and would allow me to have a nice balance between work and personal life.

I shadowed pharmacists working in an independent pharmacy and in a clinical role in a hospital and then decided I'd become a pharmacist. While in pharmacy school, I had no idea what my specialty would be in 5 or 10 years. Interestingly, I did not really enjoy the diabetes lectures during pharmacy school. I completed a community pharmacy residency after graduation, although I was unsure of the specifics beyond residency. After residency, I would consider any pharmacist positions to see what might be a good fit for me.

In parallel, I had a very challenging relationship with food and often binged on food to cope with life as an adolescent. As a result, my weight management challenges began in my teenage years. During residency, my binge eating was out of control, and at the end of residency, I was physically and mentally in a hard place. I am thankful for the counseling and an amazing support system for helping me on my journey to overcoming binge eating. Binge eating and a difficult relationship with food has continued to be a challenge throughout my adult life.

After residency, I took a position with the Georgia Pharmacy Association as director of Disease State Wellness programs. In this role, I managed 1 of the 10 sights for the American Pharmacists Association Foundation Diabetes Self-Management Program. I trained pharmacists in Dublin, Georgia, and served as a diabetes coach for employees of Mohawk Industries who had diabetes.

Due to the desire to be fully engaged in this project, I also served as a diabetes coach to a group of these employees living with diabetes. Angela, an employee that I worked with, changed my life. She and I met on a few occasions at a local track and enjoyed some great conversations as we walked off the stress of the day. In life, we experience tipping points that change our lives forever. Working with Angela, and in particular those walks with her at the local track, was the tipping point for diabetes self-management and education becoming my specialty and calling.

Since 2002, when I first felt my calling, the journey has been filled with lots of twists and turns. I am blessed to have worked in public health providing diabetes education, gestational diabetes clinical management, and insulin pump and continuous glucose monitor services and most recently, developing a diabetes education and diabetes technology service line in a family medicine graduate medical education clinic. I love being the diabetes expert and serving the team and persons with diabetes.

Recently, I took an interim administrative position with my school of pharmacy; however, I was insistent that I had to still have a half day each week working with people with diabetes. Without the experience of working with persons with diabetes, I would not be the professional I am today who sees the whole person without judging folks in their struggles.

My personal battle with food and ongoing challenges of weight management along with

the experience of working with Angela have transformed my career as a pharmacist and diabetes care and education specialist to a real calling that I joyfully carry out. Even when I retire, I plan to volunteer as a diabetes care and education specialist.

Sara (Mandy) Reece, PharmD, CDCES, BC-ADM, BCACP, FADCES, FCCP, is with the Philadelphia College of Osteopathic Medicine Georgia in Suwanee, GA.

Expanding Access to DSMES Umbrella Model

There is a shortage of diabetes self-management education and support (DSMES) services across the country, in part due to a lack of support and resources needed to start and sustain an accredited DSMES program. Recognizing this need, ADCES created the DSMES Umbrella Model, which aims to expand DSMES services in underserved and/or low-volume areas where a need is identified. In this model, a sponsor (umbrella) will support the program/service (microsite) to build capacity to deliver, document, and bill for DSMES services. In addition to helping each microsite to achieve accreditation, the umbrella will also assist each microsite to maintain accreditation over time. Each microsite will serve as its own DSMES program/service but will share tools, resources, and templates with the umbrella.

To learn more about this model in action, two ADCES DSMES Umbrella Programs share their experiences, insights, and advice.

Montana Diabetes Program

Montana Department of Public Health and Human Services

Led by Co-Quality Coordinators Marci Butcher RD, CDCES, FADCES, and Melissa House, MBA

Why Did You and Your Organization Decide to Become a DSMES Umbrella?

Developing a DSMES Umbrella Program

was the logical outgrowth of the Montana Diabetes Program's (MDP) activities to improve diabetes care and education. We've built an extensive diabetes network by providing a peer-mentoring program supporting individual diabetes care and education specialists and developing accredited/recognized DSMES programs.

These efforts have resulted in DSMES service expansion; however, there are still areas with limited to no access to DSMES, often affecting priority populations.

Administrative burden, cost of accreditation, staffing challenges, and burden of trying to do it alone were barriers reported by Montana DSMES programs, and participating in the umbrella structure would allow them to either start a DSMES program or to "keep their doors open." MDP made it a priority to pursue umbrella accreditation to reach priority populations in underserved areas and to reduce the burden of program administration to increase DSMES access.

Could You Explain What the Process Looked Like to Get Prepared to Become a DSMES Umbrella Program?

MDP has experience developing accredited DSMES programs, so the knowledge and skills were there. We approached the <u>ADCES Diabetes</u>

Education Accreditation Program (DEAP)

to receive approval and assistance working through the steps for umbrella accreditation.

To gain background insight, we worked with two states that had implemented an umbrella strategy and participated in quarterly networking calls with other states to learn best practices and resources. We wish to extend our gratitude to all!

The quality coordinator (QC) role is shared between the MDP manager and DSMES consultant. A robust QC job description was developed to define roles and responsibilities. The co-QCs routinely attend ADCES webinars and networking opportunities around program management, billing, and reimbursement and share with the microsites.

A "crosswalk" document was developed, clearly outlining the National Standards, ADCES's Interpretive Guidance, and additional criteria MDP requires to ensure sites have adequate internal support and provider champions who refer to their program.

We worked with our initial site to meet the Standards, provided support walking a patient through documentation, planned for program continuous quality improvement (CQI) and measuring outcomes, and received accreditation before pursuing other microsites. Our umbrella accreditation goal is to grow sustainable sites, whether they continue under our umbrella or "graduate" into their own accreditation.

MDP serves only as the accrediting organization and provides oversight, support, and technical assistance to each microsite under its accreditation. Each microsite has its own accreditation certificate associated with a billing NPI and does its own billing.

Could You Describe Your Process for Identifying Microsites?

MDP updated surveillance reports, mapped current diabetes burden and existing DSMES sites, conducted a provider survey, and utilized our partners to help identify where DSMES is needed. Our strong statewide diabetes network provided opportunities to identify potential sites, and interested sites inquired about the umbrella. Two existing recognized/accredited sites chose to come under our umbrella to avoid losing their programs. We currently have three hospital-outpatient-based programs, a pharmacy, a federally qualified health center (FQHC), and a private nutrition practice under the umbrella and are pursuing additional microsites.

How Did You Get Your Microsites Onboarded?

The onboarding process follows basic steps but provides for flexibility and collaboration. An initial site meeting reviews the value of DSMES, how the umbrella is structured, and expectations. An agreement is signed outlining roles and expectations.

Regular meetings are held to work through each of the Standards, provide the site with data and templates, gather needed information, and provide training on documentation and delivering DSMES. We provide structure for the CQI plan and tracking outcomes and assist with continuing education needs.

All microsites are required to use our documentation platform, Electronic Diabetes Quality Care Monitoring System. We provide ongoing technical assistance.

When the Standards are met and a patient has participated in the full DSMES cycle, the deidentified chart is reviewed by the QC and the site is added in the ADCES DEAP Dashboard.

How Are You Providing Ongoing Support for Your Microsites?

MDP continues to support our microsites through monthly peer-learning opportunities. Mentoring and peer support are key aspects of the umbrella structure.

We pay for the umbrella accreditation, microsite fees, and ADCES curriculum and provide educational materials and resources for all microsites.

We also offer guidance and technical support and outreach national resources

when higher level answers are required (ie, reimbursement), provide the documentation platform, and support each program to ensure audit readiness.

Microsites value the services provided by the QC. This support enhances microsite ability to provide quality DSMES services, focus on patient care, and feel supported and part of a team.

What Are Some of the Challenges You Have Encountered?

We serve different settings, which increases access, but it is challenging to understand the complexities of each setting, including varying billing and reimbursement requirements.

Our microsites report documentation standardization and "double entry" as challenges.

Our biggest hurdle has been program closure due to staffing loss. Staffing in rural areas continues to be one of the largest barriers faced by Montana's DSMES programs.

What Advice Would You Give Others That Are Considering Becoming a DSMES Umbrella?

Significant time and effort were spent developing a sustainable structure before submitting our application. Having an experienced QC, addressing program readiness, providing stepwise assistance in meeting the National Standards, and providing ongoing assistance and resources have facilitated our success. Planning for DSMES documentation/reporting and outlining documentation expectations ahead of time is important, as are ongoing peer support and networking.

These elements are critical to our umbrella structure, provide value, and incentivize participation. We suggest planning for instructor succession in low-volume areas. Every site is different, and being willing to be flexible and understand each organization and their patient populations is critical to successful DSMES umbrella program implementation.

Virginia DSMES Umbrella Program

Virginia Center for Diabetes Prevention and Education at the University of Virginia Led by Quality Coordinator Lorrie Rilko, DNP, FNP, BC-ADM, CDCES

Why Did You and Your Organization Decide to Become a DSMES Umbrella?

Approximately 11.4% of the adult population in Virginia have been diagnosed with diabetes, and diabetes education programs are notably scarce in the highest risk areas of the state. The Virginia Department of Health (VDH) has sponsored the Virginia DSMES Umbrella program, designed to assist underrepresented and high-risk areas in enhancing the availability and accessibility of DSMES programs. This umbrella initiative provides organizations with the resources needed to develop evidence-based diabetes education programs, navigate the accreditation process, and provide financial support as they launch their DSMES programs. Additionally, the role of the umbrella QC is to alleviate some of the administrative burden on these programs by offering ongoing support, oversight, and technical assistance.

Could You Explain What the Process Looked Like to Prepare for Becoming a DSMES Umbrella?

The VDH commissioned the Virginia Center for Diabetes Prevention and Education (VCDPE), at the University of Virginia, to establish the VA DSMES Umbrella. Our journey to achieving ADCES accreditation for our first microsite involved a comprehensive yearlong preparation process, during which we collaborated closely with an experienced DSMES umbrella QC. This critical partnership provided us with valuable insights and enhanced our capacity to support small, often solo diabetes care and education specialists.

By participating in quarterly state DSMES umbrella meetings and connecting with umbrella QCs from various states—including North Carolina, Alaska, Kentucky, Georgia, Michigan, Texas, and Montana—we were able to share best practices and learn from their experiences.

We met several times with the ADCES DEAP to gather essential information and ensure the accuracy of our data for the accreditation application. Throughout the year, VCDPE collaborated with various organizations to evaluate digital platforms that would facilitate documentation for the microsites, ensuring they always remained audit ready. We developed a comprehensive job description for the umbrella QC and clearly defined the roles and responsibilities for both the umbrella and the microsites. Finally, we attended webinars focused on DSMES billing and reimbursement. This thorough preparation has positioned us to effectively support diabetes education in Virginia.

Could You Describe Your Process for Identifying Microsites?

After a landscape analysis was done, various networking channels were utilized to connect with prospective programs and engage in discussions about potential collaboration. We delivered multiple presentations to organizations, including community pharmacies, FQHCs, and free clinics. For organizations that expressed interest, we followed up to schedule meetings where we could explore the benefits of joining the umbrella program.

Our first microsite was an FQHC with a solo dietitian and certified diabetes care and education specialist who aimed to expand her medical nutrition therapy services into a comprehensive DSMES program. We are currently collaborating with another pharmacy and an additional FQHC, both of which plan to submit their accreditation applications in early 2025.

How Did You Get Your Microsites Onboarded?

After several meetings to establish the structure of our umbrella program, the microsite and the umbrella QCs engaged in frequent planning sessions for several months. During these meetings, we meticulously navigated each step of the accreditation process. Once all necessary steps were completed, the umbrella QC submitted the accreditation application on behalf of the microsite.

We provided comprehensive support to the microsite in setting up their DSMES program. This included reviewing all required documentation for accreditation, offering education on billing and reimbursement specific to FQHCs, and collaboratively developing the site's continuous quality improvement project, which is essential for maintaining accreditation.

To promote the new program and increase referrals, we created flyers for microsite staff and providers and a patient-focused flyer outlining the benefits of DSMES.

How are You Providing Ongoing Support to Your Microsites?

The VA DSMES umbrella program offers comprehensive ongoing support to our microsites through initiatives including:

- Financial assistance: Covering the initial accreditation fee.
- Documentation platform: Provide a dedicated platform for patient DSMES documentation, streamlining recordkeeping and compliance.
- Clinical and behavioral oversight: Oversee metrics, offering support to ensure effective program delivery.
- Guidance and support: Assist with annual status reporting, CQI, and remaining audit ready.
- Targeted marketing materials: Assist with promotional and marketing materials aimed at high-risk populations to enhance outreach and engagement.

What Are Some of the Challenges You Have Encountered?

One of our most significant challenges has been identifying a documentation platform that enables the umbrella QC to effectively oversee the education process and outcomes without imposing an additional documentation burden on microsite DSMES teams. Currently, we are using ADA Chronicle Pro, which serves as an excellent solution for organizations without access to electronic health records (EHRs), such as pharmacies. However, this platform creates a duplication of documentation for sites that do have EHRs, complicating the workflow for those DSMES teams. We are actively seeking alternatives that strike a balance between oversight and efficiency to streamline the documentation process for all our microsites.

What Advice Would You Give Others Considering Becoming a DSMES Umbrella?

Before submitting the first microsite's accreditation application, the VA DSMES

umbrella program invested significant time in preparation. We believe this groundwork was crucial for the program's success and contributed to a smoother initiation process.

It's also important to recognize that each microsite may demonstrate varying levels of readiness for initiating and implementing a DSMES program. Because there is no onesize-fits-all solution for the support needed, it is essential to tailor assistance to address the unique needs of each microsite, which will lead to more effective and successful implementation.

If you would like to learn more about the ADCES DSMES Umbrella Model or are interested in becoming a sponsor, please email deap@ adces.org.



WHAT'S YOUR RECOMMENDED TECH COMPETENCY LEVEL?

All care team members and support staff play a crucial part in providing comprehensive support to people with diabetes using technology, but it varies by role and setting. That's why we've developed a tool to help identify your recommended competency level (basic through advanced), as well as resources that can help you grow your knowledge base.

FIND YOUR Recommended Level Now



The Sky Was Falling, but We Stopped It

Telehealth Regulatory Wins and Their Impact on Access to Diabetes Self-Management Training

HANNAH MARTIN 💿, MPH, RDN AND JULIA SOCKE, RDN, LDN, CDCES



The COVID-19 public health emergency (PHE) led to a significant expansion of telehealth that has continued over the last 5 years. This has increased access to diabetes self-management and support (DSMES) services for people who would otherwise not be able to use them, including increased access to the Medicare diabetes self-management training (DSMT) benefit.

Early in the PHE, the Association of Diabetes Education & Care Specialists (ADCES) focused its telehealth advocacy efforts on ensuring that the new flexibilities were meeting the needs of programs and that programs had clarity on how these flexibilities applied to them. As we approached the end of the PHE, ADCES recognized the need to ensure that as many of these policies were made permanent before they expired to ensure seamless continuation of telehealth access into the future. The wins described in the following showcase the role of advocacy not just in improving from the status quo but also in working behind the scenes to protect gains so that access is not rolled back.

Although we are still in a period of uncertainty

as to the long-term fate of overall telehealth access in Medicare, the advocacy efforts of ADCES and other organizations have resulted in several key wins in permanent telehealth policy with positive practice implications for DSMES programs.

Who Can Provide Care via Telehealth

One of the biggest challenges of providing DSMT via telehealth to Medicare beneficiaries prior to and early on in the PHE was the long-standing regulations governing which providers are eligible to deliver care via telehealth, also known as being a "distant site provider." The distant site provider list has historically been a subset of the Medicare billable provider list, which includes practitioners such as physicians, registered dietitians, and nurse practitioners but omits registered nurses and pharmacists.

In early 2020, Congress gave the Centers for Medicare and Medicaid Services (CMS) the flexibility to temporarily expand the distant site provider list and, after <u>requests</u> from ADCES and the American Diabetes Association, CMS issued guidance indicating all members of the DSMT care team could provide DSMT via telehealth, which would then be billed under another member of the care team (eg, RD, NP, MD), as occurs with in-person DSMT.

Over the next several years, ADCES consistently requested that CMS make this change permanent, and in 2023, CMS <u>proposed</u> to permanently allow all members of the DSMT team to provide the service via telehealth. ADCES supported the proposal overall, <u>providing feedback</u> on ways they could improve clarity. CMS incorporated ADCES's feedback on their proposal, and the policy was <u>made permanent</u> beginning January 1, 2024.

Practice Implications

Had ADCES not pushed CMS for this change, DSMT programs would have lost the ability for their RNs and pharmacists to provide care via telehealth once the temporary telehealth extensions ended. This change ensures that DSMT teams can continue to provide multidisciplinary care via telehealth.

Telehealth From the Hospital Outpatient Department Setting

With extremely low use of telehealth in Medicare prior to 2020, many of CMS's policies surrounding the practice had never been widely used or scrutinized. Included in that was how telehealth regulations interfaced with payment regulations for care delivered from the Hospital Outpatient Department (HOPD) setting, particularly when billed under the hospital's National Provider Identifier (NPI). As of 2020, CMS's position was that telehealth DSMT from the HOPD setting was not permanently eligible to be delivered via telehealth and could only be done temporarily under the flexibilities.

Although telehealth DSMT from the HOPD setting was continuing to be paid for over the last several years, ADCES's concern was what would happen when the HOPD telehealth flexibilities ended, which nearly occurred several times, including in May 2023, when the PHE expired, and again at the end of 2023. ADCES worked for years with CMS to attempt to understand their interpretation of these rules and unfortunately received conflicting reasoning, including repeated conflation of DSMT with other "therapy services," such as speech therapy or physical therapy, which, unlike DSMT, were not eligible for telehealth prior to the PHE and whose billing providers were similarly not eligible to provide telehealth.

One concern raised by CMS was their interpretation that they could not permanently pay for telehealth DSMT from the HOPD setting when billed under the hospital's NPI because hospitals as entities were not on the distant site provider list. In a 2024 joint letter with the ADA, ADCES pushed back on this interpretation, outlining potential options for a path forward. A few months later, CMS issued a proposal to align their rules for telehealth billing from the HOPD setting with those from the physician fee schedule. This change took effect January 1, 2025.

Although <u>some questions</u> and opportunities to improve clarity on these regulations remain, ADCES is cautiously optimistic that telehealth coverage rules will now permanently be aligned across settings.

Practice Implications

We have heard from DSMT providers in HOPD settings that there has been confusion in billing and compliance departments on using the hospital's NPI to bill for telehealth DSMT. Our hope is that by working with CMS to temporarily extend this access and then permanently align payment policies across settings, we will ultimately achieve clarity and alignment that will facilitate continued telehealth DSMT from the HOPD setting.

Audio-Only Telehealth

Since the inception of telehealth in the Medicare program, providers were generally required to use real time via audio-video platforms. The rapid proliferation of telehealth in spring 2020 coupled with the new, temporary ability for patients to receive care via telehealth from their homes revealed that many Medicare beneficiaries in rural areas, those of lower income, and those with limited access to or understanding of technology were <u>inequitably left out</u> of this expansion. CMS proactively allowed audio-only to be an acceptable modality for certain services (including DSMT) to address this equity issue.

After over 4 years of studying the impacts of this policy and receiving supportive input from across the health care community, CMS <u>decided</u> to permanently allow audio-only telehealth for certain services under certain conditions. These conditions include that telehealth providers must be capable of and offer the use of audio-video telehealth so that audio-only is used only as an alternative when the beneficiary is not capable of or does not consent to the use of video technology. If these conditions are met, care can proceed via audio-only. This change <u>permanently</u> took effect January 1, 2025.

Practice Implications

Audio-only telehealth allows greater reach for DSMT services, and the permanent change ensures that DSMT programs can continue to provide audio-only telehealth services without interruption to beneficiaries that meet the aforementioned conditions. However, audio-video technology should still be viewed as the default delivery of telehealth. To proceed with audioonly telehealth moving forward, DSMT providers must first assess each Medicare beneficiary to determine that the conditions have been met and use their clinical judgment to determine that audio-only technology is sufficient to furnish the DSMT service.

Injection Training via Telehealth

Since DSMT was first allowed to be provided via telehealth to Medicare beneficiaries nearly 2 decades ago, there have been limitations placed on its use, including that any injection training that was ordered as part of DSMT could only be provided in person, even if all other hours of DSMT were provided via telehealth. This requirement was waived several months into the PHE, and after 3 years with no measurable increases in complications from providing injection training via telehealth, CMS <u>decided to</u> permanently remove the requirement that injection training still be done in person. ADCES <u>supported</u> this change, and it took effect January 1, 2024.

Practice Implications

Permanently allowing injection training to be done via telehealth will continue to allow DSMT programs to provide this service without interruption. DSMES programs may ultimately still recommend that a Medicare beneficiary attend an in-person appointment for injection training, but the ability to offer this service via telehealth may result in increased access and more timely care for people that may have difficulty getting to a physical location due to cost, distance, and availability. Had this change not been made permanent, DSMES programs would have eventually lost the option to do injection training via telehealth once the temporary waivers were allowed to expire, and all Medicare beneficiaries would have to receive this aspect of training in person.

Conclusion

Despite numerous telehealth wins over the last 5 years, more still needs to be done. As of winter 2025, Medicare beneficiaries' overall access to telehealth remains uncertain as Congress wrestles with whether and for how long to extend major policies such as allowing beneficiaries to receive care from their home and allowing all beneficiaries to access telehealth regardless of whether they live in a rural or medically underserved area. ADCES members have sent thousands of messages to Congress about telehealth access, and we call on members to continue using their voice in raising this issue through the <u>ADCES</u> Legislative Action Center.

Hannah Martin D https://orcid.org/0000-0002-8382-5301 Hannah Martin, MPH, RDN is director of advocacy with ADCES and based in Washington, DC, and Julia Socke, RDN, LDN, CDCES, is director of Diabetes Education and Accreditation Program (DEAP) with ADCES in Chicago, IL.



Trailblazers in Diabetes Care

Strategies for Success from ADCES Entrepreneurs

SARAH HORMACHEA MS (D, RD, CDCES, BC-ADM

The Association of Diabetes Care and Education Specialists (ADCES) Entrepreneurship Community of Interest (COI) recently celebrated its first anniversary, and the creativity and innovation of its members are truly inspiring. What started as a simple initiative to connect like-minded professionals working beyond traditional settings in diabetes care and education has evolved into a dynamic platform for professional growth and meaningful networking. The community stands as an empowering testament to the fact that building and running a successful business in diabetes care and education is achievable.

Entrepreneurship Trends

Entrepreneurship is on the rise. Driven by changing economic conditions, technological advancements, and evolving worker preferences, more people are taking the leap into selfemployment. US census trends suggest a recordbreaking 5.5 million new businesses were started in 2023, marking a staggering 55% increase from just 4 years prior.¹ According to a recent article in *Future Business Journal*, this surge can be attributed to factors such as job uncertainty, the rise of remote work, and the growing desire for a better work-life balance.² For many, the global pandemic served as a catalyst for change, forcing businesses and individuals to rethink their operational models.

It should come as no surprise that these trends are also reflected in the health care industry. Telemedicine and virtual care have made significant strides in recent years, driven by increased demand for remote health care services, such as virtual consultations and chronic disease management.³ This shift addresses issues of convenience and accessibility while also offering substantial cost savings.

Diabetes care and education specialists (DCESs) are finding innovative ways to leverage their expertise in a health care market increasingly burdened by the complexities of diabetes management. By addressing care delivery models, quality improvement strategies, and the implementation of evidence-based standards, DCESs are excelling in their entrepreneurial endeavors.⁴ In response to the call for health care systems to integrate more diabetes care and education specialists, DCES are finding opportunities in the market for contract and consultative services.

Three Strategies for Successful Entrepreneurship

Entrepreneurs bring distinct skills because their work spans diverse environments and industries. The Entrepreneurship COI has provided a platform to share and celebrate success. As more DCESs embrace entrepreneurship, this community becomes a vital source of inspiration and guidance. Through interviews conducted with members of this COI, 3 key strategies for entrepreneurial success consistently emerge: leveraging personal experience, setting clear boundaries, and recognizing and addressing unmet needs. These interconnected themes provide a comprehensive perspective on how COI members drive meaningful impact.

The Power of Personal Experience

Successful businesses are often built on meaningful personal experiences. This foundation provides a deep sense of purpose and authenticity, which resonates with clients.

Quisha Umemba, founder and CEO of Umemba Health, a leading provider of comprehensive public health services for federal and government organizations, has leveraged her personal experiences to address real-world challenges. Her journey into public health is deeply rooted in her firsthand exposure to systemic gaps, particularly the lack of diversity at diabetes conferences-a stark contrast to the disproportionate impact the disease has on communities of color. Drawing on her lived experience, extensive training, and professional network, Quisha delivers comprehensive workforce development and high-guality services that prioritize people and enhance performance. Her efforts were recently recognized with the Sanofi Health Equity Award, a prestigious honor that acknowledges individuals making a difference in equitable access to type 1 diabetes information, with a particular focus on adults of color at Historically Black Colleges and Universities.

Beverly Thomassian, president of Diabetes Education Services, an educational company dedicated to supporting health care professionals in advancing their careers in diabetes care, is wellversed in drawing from her extensive professional experience. As a diabetes nurse specialist and board certified in advanced diabetes management, Beverly brings over 20 years of experience as an innovator, leader, and mentor in the field.

Her transition from a floor nurse to starting her own diabetes education company was driven by her direct experiences with the challenges her colleagues faced in caring for patients with complex clinical cases. She saw a valuable opportunity to adapt and innovate the way diabetes care and education strategies are taught to health care providers. Beverly's personal encounters have guided her toward a successful business model that emphasizes practical solutions, ongoing education, and a deep commitment to improving diabetes care.

The Strength to Set Clear Boundaries

Professional boundaries are essential for

maintaining focus, protecting well-being, and achieving long-term success. Entrepreneurs are often consumed by the constant demands of running a business—long hours, tight deadlines, and the need to constantly be "on." These pressures can quickly lead to burnout.

Susan Weiner, award-winning food and nutrition expert, author, and owner of Susan Weiner Nutrition, emphasizes the importance of setting clear and thoughtful boundaries as a cornerstone for both personal and professional fulfillment. Learning to say "no" is vital to prevent becoming overwhelmed and sidetracked.

Susan shares that as an entrepreneur, she had to be honest with herself about which opportunities are truly the right fit and which ones would only add unnecessary stress. She highlights the importance of time management, noting that although it is tempting to take on everything and help everyone, it is not sustainable. By setting boundaries, she is able to focus on the projects that align with her values, ensure she gives her full attention to each task, and take care of herself in the process.

Constance Brown-Riggs, an award-winning registered dietitian, 4-time author, and owner of Eating Soulfully, recognized the isolation that often accompanies private practice. By intentionally working 1 day per week in an endocrinology office, she struck a balance between maintaining professional support and interaction while preserving her independence.

Constance also emphasizes the importance of financial and strategic boundaries when managing the unpredictable income streams of entrepreneurship. Budgeting for initial expenses, such as licensing, insurance, marketing, office space, and technology, can be both stressful and challenging. However, her careful planning and proactive risk management demonstrate a strong boundary-setting approach to financial and emotional well-being.

The Insight to Address Unmet Needs

At its core, entrepreneurship is about identifying and solving problems in innovative ways. The most impactful ventures often emerge when entrepreneurs possess a deep understanding of the challenges their target market faces.

Gary Scheiner, owner and clinical director of Integrated Diabetes Services, has lived with type 1 diabetes since 1985 and recognized a lack of sufficient time and resources in the traditional health care system to address the daily challenges of managing the disease. Identifying that many individuals with diabetes were eager to invest in improved self-management tools and support, Gary established a private-pay practice. His focus on intensive insulin therapy and advanced education filled a critical niche that was not being adequately addressed by primary care or endocrinology.

Amiad Fredman, cofounder and chief product officer at SweetSpot, leads the development of a remote diabetes management platform that is revolutionizing clinical workflows in diabetes care. As a physician, he identified a significant gap in clinical practice: Despite advancements such as continuous glucose monitors and insulin pumps, health care providers lacked a streamlined system to fully leverage the data these devices generated. Through the creation of SweetSpot, Amiad has made diabetes data more accessible and meaningful for providers, empowering them to deliver more proactive, personalized care. His journey illustrates how recognizing unmet needs—whether in clinical workflows or patient care—can drive innovative solutions that lead to meaningful, transformative change in health care.

Trailblazers in Diabetes Care and Education

Entrepreneurship in diabetes care and education is not only attainable but also a powerful driver of meaningful change and impact. In its first year, the ADCES Entrepreneurship COI has become a vibrant hub for collaboration, reflecting a strong demand for professional support and networking opportunities. By showcasing the journeys of ADCES entrepreneurial trailblazers, the community inspires others to follow in their footsteps. ADCES members have access to a number of COIs, including Entrepreneurship, Diabetes Technology, Inpatient Management, and more. Log in to <u>www.</u> <u>adcesconnect.org</u> to learn more about each COI, subscribe, and stay engaged.

Acknowledgments

The author acknowledges the expertise of all *Interview With an Entrepreneur* series contributors and those featured in this article.

Declaration of Conflicting Interests

The author declares having no professional or financial association or interest in an entity, product, or service related to the content or development of this article.

Funding

The author declares having received no specific grant from a funding agency in the public,

commercial, or not-for-profit sectors related to the content or development of this article.

Sarah Hormachea D https://orcid.org/0009-0002-5778-2958

REFERENCES

1. Explore census data. Accessed December 18, 2024. https:// data.census.gov/

2. Al Mohamed AA, Al Mohamed S, Alebrahem M. The remote revolution: assessing the impact of working from home on finance professionals. *Futur Bus J.* 2024;10(1):94. doi:10.1186/ s43093-024-00345-1

3. Shaver J. The state of telehealth before and after the COVID-19 pandemic. *Prim Care*. 2022;49(4):517-530. doi:10.1016/j. pop.2022.04.002

4. Rodriguez K, Ryan D, Dickinson JK, Phan V. Improving quality outcomes: the value of diabetes care and education specialists. *Clin Diabetes*. 2022;40(3):356-365. doi:10.2337/cd21-0089



LIZZY HAWK, MS, RDN, CDCES



Despite the proven benefits of diabetes selfmanagement education and support (DSMES) in improving patient outcomes and reducing complications, the participation rate among eligible individuals remains alarmingly low. Millions of people with diabetes who could gain valuable tools to help manage their disease, optimize their health outcomes, and avoid serious complications are not utilizing this critical resource. This gap not only undermines personal health outcomes but also strains health care systems, raising questions about the barriers preventing widespread access and engagement in DSMES programs.

Over the past 10 years of my career, I've worked to expand the reach of DSMES to vulnerable populations and bring attention to the impact diabetes care and education specialists (DCESs) have on a population's health. These efforts are what led to becoming the <u>2024 ADCES</u> <u>Power of Our Impact award recipient</u>. Although the recognition is deeply rewarding, the true impact has been the result of a collaborative effort involving many key influencers. Here is my story.

Impact of a Diabetes Care Community Coordinator

I served as the quality coordinator of an accredited hospital-based diabetes education program in Reading, Pennsylvania. Our program was located in an inner-city ambulatory center serving some of the most underserved neighborhoods and vulnerable residents of the area. Our program was thriving with referrals from our family practice physicians across the street who knew us well—and would often send patients walking in with a referral in hand just as they were leaving their appointment.

Most of our patients were enrolled in Medicaid, and so there were no out-of-pocket costs for their appointments. Although this was great for engagement, it didn't help us build a business plan when we needed to grow our team.

With poor Medicaid reimbursement rates, we struggled to get our finance team to agree to add on another CDCES, which brings me to a key DSMES influencer in improving DSMES outreach, the community health workers (CHW). We were given the green light on hiring a CHW to fill the role of a **Diabetes care community** coordinator (DCCC). Not only did our DCCC solve for our patient's nonmedical needs, such as housing, transportation, and food access, but the implementation of the role helped our program become more efficient. We added group education programs, partnered with a local community-based organization to integrate a fruit and vegetable prescription incentive into our program, and were able to implement a hospitalization transition of care initiative to help patients successfully shift their diabetes care from inpatient to outpatient resources.

Gaining Support From Provider Allies

Building strong relationships with provider allies was a crucial next step for increasing access to our DSMES. Over the next year, my team built a business plan to expand our program's reach to other primary care providers (PCPs) in our community.

We did our best to replicate the nuggets of success we had at our downtown campus, such as providing DSMES in other ambulatory centers strategically located in walking distance to the other PCP offices. We set up lunch and learns about diabetes technology, provided cheat sheets for office staff to navigate ordering diabetes supplies, and offered an elective diabetes training for the family practice residency program.

As our program grew to different patient populations, we started facing challenges we didn't see as often with the Medicaid population. Barriers such as out-of-pocket costs for DSMES and prescription formulary restrictions were making it more difficult for our patients to access DSMES, self-care devices, and even medications.

Expanding Impact Through Partnership With Health Plan Sponsors

How are we to increase access to DSMES to patients who have to reach their \$5,000 insurance deductible before they have any coverage for our services? Why did providers need to go through intensive prior authorizations to get their patients on a medication that was standard of care? Why is one patient able to benefit from a continuous glucose monitor while another similar patient is denied? More importantly, who was making these decisions?

To find answers, I shifted my career and took on a role within an employer-sponsored health plan managing the chronic care and health outcomes for a chicken processing company's health plan. Many of the plan members were from the communities I had worked in while at the health system, but with poor health benefit literacy, demanding work schedules, and language barriers, accessing health care for themselves was a challenge.

The employer recognized this gap and decided to provide employees with on-site primary care to help tamp down rising costs associated with poor preventive care engagement, increasing ER utilization, and preventable hospital spend. Because on-site care is convenient, employees received care they might not otherwise get due to transportation or time away from work. But a deep dive into the health plan's claims showed a rising trend in chronic conditions and a potential increase in costs for these members despite their access to primary care.

At first glance, chronic condition health spend looked low, but the data showed multiple gaps in care. Participants weren't taking medications as prescribed, and clinical metrics were considerably off, likely leading to costly complications.

To respond, we decided to layer on an innovative chronic condition program, which integrated DSMES into the on-site primary care office. This provided us with a return on investment that included improved worker productivity, employee satisfaction, health outcomes, cost-effective care, and of course, health equity.

We then looked at the efficiency of traditional cost-containment strategies outlined in the health plan (eg, copays, deductibles, pharmacy formularies, prior authorizations). We found many were ineffective at reducing costs and resulted in poor quality outcomes by delaying care and limiting access. By removing this friction, the health plan members gained access to the tools they needed to better manage their health. Members no longer had to meet their deductible before having coverage for DMSES and prior authorizations, and copays were removed for diabetes-related medications and supplies when members were actively engaged in DSMES services.

The employer's health plan deployed a strategy to retool their member health care resources with concentrated efforts around equitable health benefits. Program outcomes included a reduction in prescription waste, increased employee satisfaction, improved provider satisfaction, and an average 3.0 drop in A1C, all while keeping overall health plan spend flat.

Conclusion

From collaborating with DCCCs who are an often underrecognized yet integral part of the diabetes care team to leveraging support from provider allies and health plan sponsors who recognize their influence on eliminating barriers, the progress we've made in increasing access to DSMES is a shared achievement. This collaboration has not only expanded DSMES's reach but also reinforced the idea that meaningful change in health care can be made, even at a local level, through a collective commitment to improving health outcomes for everyone.

Lizzy Hawk, MS, RDN, CDCES, is employed at Diverge Health in Reading, Pennsylvania.



VISIT ADCES25.ORG



Housing and registration are now open. For diabetes care and education specialists and the entire diabetes care team, success means helping people with prediabetes, diabetes and related conditions **thrive**. ADCES25 is an opportunity to capture the spirit of thriving as a way of life. Here attendees discover the latest in diabetes care, education and technology to support, educate, prevent and flourish as a community.

For the first time ever, the ADCES annual conference is heading to Phoenix.

Rooted in the innovation of the Hohokam people, Phoenix thrives today as a vibrant hub of art, culture, and cuisine amidst the lush Sonoran Desert. Its mystique will inspire you to explore, indulge, and discover why the desert has sparked creativity and adventure for centuries.





CSTYOUR KNOWLEDGE

Note: Adapted from Review Guide for the Certified Diabetes Care and Education Specialist Exam, 6th Edition, (c) 2023. Association of Diabetes Care & Education Specialists. Reprinted with permission.

Answers appear on page 62.

A 40-year-old man with type 2 diabetes for 3 years presents on his lunch break for diabetes education. Which of the following is most important for the diabetes care and education specialist to review with the man at this initial visit?

- A. The economic impact of diabetes on the health care system
- B. His family history of diabetes
- C. His expectations and personal education goals
- D. The pathophysiology of diabetes and its complications

A 62-year-old woman with a history of type 2 diabetes and cardiovascular disease contacts the diabetes care and education specialist for advice on exercise. Her health care provider recommends beginning a resistance weight-training program following a recent diagnosis of osteopenia. Which of the following is the most appropriate exercise recommendation for this woman when exercising?

- A. She should check her blood pressure and pulse frequently during exercise.
- B. She should focus on aerobic exercise to strengthen her bones.
- C. She should hold her breath while lifting to stimulate coronary perfusion.

- D. She should complete repetitions as quickly as possible.
- A new billing administrator asks the diabetes care and education specialist (DCES) for clarification about a Medicare claim. After an initial assessment, the DCES indicates the man should be scheduled for an individual session instead of the usual group education class. According to Medicare regulations, which of the following is the most acceptable reason to schedule this man for individual diabetes education?
 - A. He prefers one-on-one education.
 - B. He is blind and reads braille.
 - C. He takes insulin for diabetes.
 - D. He wears a hearing aid in one ear.

Which of the following statements about depression is true?

- A. Individuals with diabetes have a two- to fourfold increased risk of depression.
- B. Men with diabetes are twice as likely as women with diabetes to have depression.
- C. Being older, married, and well educated are all significant risk factors for depression.
- D. Cognitive behavioral therapy has not been shown to be effective in treating individuals with diabetes and depression.

Sign up for FREE updates about the latest research

journals.sagepub.com/action/registration

Register now and start receiving...

New content alerts

Receive new article alerts based on your preferred frequency (daily, weekly, monthly or never), in addition to new issue alerts, as soon as new content is available online.

Search alerts

Run a search using keywords, author name, or DOI, then select 'Save search' from the results page – you'll receive personalized alerts based on your preferred frequency when new content is added online.

Sage Journals

Test Your Knowledge Answers

Questions appear on page 60.

- C: Assessment is the first step in the process of providing diabetes education. By understanding concerns, needs, and priorities of the person with diabetes are, he and the diabetes care and education specialist can collaboratively establish a DSMES plan that will assist the individual to meet desired outcomes. Health care system issues are not germane to this visit (A). Both B and D may be important issues to cover but do not need to be addressed in the first visit.
- 2. A: Individuals with cardiac disease must focus particular attention on blood pressure and heart rate response during resistance training. The heart rate and blood pressure need to remain within the limits established by an exercise stress screening and therefore need to be monitored throughout the training session. Starting with light resistance and choosing exercises that use a smaller amount of muscle mass help decrease the myocardial oxygen demand on the heart. In the absence of contraindications, all people with diabetes should be encouraged to engage in resistance training at least twice each week. Recommended duration of resistance training is 1 to 3 sets of 10 to 15 repetitions. Aerobic exercise is important, but people with osteopenia benefit most from resistance training. Aerobic exercise has not been shown to result in the same bone-strengthening

benefits as resistance exercises (B). When performing resistance training, individuals with cardiovascular disease should be advised to breathe continually and avoid breath-holding. They should exhale during the exertion or lifting phase and inhale while returning to starting position (C). The recommendation is to lift weights with slow, controlled movements. The person should stop exercising if warning signs or symptoms of cardiac distress occur, such as dizziness, unusual shortness of breath, or chest pain (D).

- **3. B**: Although Medicare regulations dictate that most recipients receive their education in a group setting to qualify for reimbursement, the following are exceptions: No group session is available within 2 months of the date education is ordered; the individual has severe vision, language, or hearing limitations or other conditions identified by the treating health care provider (A, C, and D).
- 4. A: A is the correct answer because depression is twice as common in people with type 1 and type 2 diabetes as the general population. Women with diabetes have 1.6 times the risk of depression compared with their male counterparts (B). Being younger, not being married, and having a low level of education are associated with depression (C). Cognitive behavioral therapy is as effective in treating people with diabetes as without (D).

Sage Author Services

Get the support you need to get published

Ensure your next research paper meets format, language, and style requirements by working with qualified subject area experts.

Sage Author Services provides end-to-end publication support with:

- English Language Editing
- **Translation with Editing**
- Manuscript Formatting
- Plagiarism Check
- ✓ Infographics & Video Abstracts
- Artwork Preparation
- Plain Language Summaries



authorservices.sagepub.com



Sage Journals

Your gateway to world-class research journals

Sage is a home to over 1,100 prestigious and highly cited journals from a wide range of disciplines, available electronically on the **Sage Journals** platform. Search and browse all journals content—including journals in business, humanities and social sciences, and science, technology, and medicine.

Sage Journals offers:

- 200+ Gold Open Access and 900+ hybrid journals in 50+ disciplines
- A streamlined and accessible reading experience across web, ePub and PDF formats
- Feature-rich platform including article- and journal-level metrics, email alerts, citation and sharing tools, permissions requests and more
- Discipline Hubs and curated topic-based article collections highlighting the latest content across our portfolios

Get started today at journals.sagepub.com

ADCES REVIEWED Mark of Excellence Program

The ADCES REVIEWED Mark of Excellence Program allows organizations to demonstrate that their materials—handouts, pamphlets, training programs, videos, courses, apps, and more meet the high standards set by ADCES for accuracy, relevance, and quality.

The program, formerly called "ADCES Favorably Reviewed," was established in 1997 to signify credibility and increase the visibility of educational materials for health care professionals (HCPs) and individuals with prediabetes, diabetes, and other cardiometabolic conditions.

Fees

Reviews are priced based on the size, timeline, length, and stage in which the product is submitted, starting as low as \$10,000. The average time to complete a review is 3 weeks.

Case Use Examples

- » Connected Care Infographic Audience: HCPs
- » staying-on-track.pdf (multiple patient brochures in Spanish and English)
 Audience: People with diabetes and caregivers

As a health care communications agency, we have worked with ADCES for many years, collaborating on the ADCES Reviewed program on behalf of our client, a leading pharmaceutical company. The partnership has always proved very valuable, providing us with helpful feedback on a wide range of materials (print and digital), for diverse audiences of different levels and backgrounds. The ADCES team works with us to ensure our materials are on target, of the highest quality, and feature the most relevant, latest information.

> **Anna Beverly** QuadRx Communications

Association of Diabetes Care & Education Specialists

77

We look forward to partnering with you. Contact us for more information:

Ashley Alexander Director of Corporate Development aalexander@adces.org **Jodi Lavin-Tompkins, MSN, RN, CDCES** Director of Accreditation/Content Development jlavintompkins@adces.org



DIABETES CARE & EDUCATION ESSENTIALS:

Empower your practice with these essential ADCES resources.



Your go-to desk reference! Created by an expert interdisciplinary team, this comprehensive guide is essential for daily diabetes care practice and ideal for those preparing for the Certified Diabetes Care and Education Specialist® (CDCES) exam. Available in print and e-book.



Education Specialist Exam

ADCES

A must-have for exam prep! This guide offers 75 selfassessment questions, over 400 practice questions, and in-depth explanations to build confidence for the CDCES exam. Available in print and E-book.



Designed around the ADCES7 Self-Care Behaviors®, this curriculum offers practical tools for diabetes educators, including instructional plans, SMART goal setting, and DSMES program support. Available in print and E-book.



Quickly compare insulin and glucose-lowering agents with this color-coded, annually updated guide. Includes resources for blood pressure, cholesterol, and obesity management. Available in print and E-book.



ORDER YOUR COPIES TODAY! adces.org Also available in eBook format.



©2024 ADCES. All rights reserved. 182-24