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IN PRACTICE

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Supporting Diabetes Education & Healthy Coping Through Gamification



IN THIS ISSUE:

- Learn more about the updates in management of hypertension for people with diabetes
- Shine a spotlight on perimenopause and menopause and its impact on diabetes self-management
- Read a fascinating honest conversation between a DCES and a man with type 1 diabetes discussing the very real impact of diabetes on sexual health
- Review practical advice about helping the person with diabetes choose an automated insulin delivery system that is right for them



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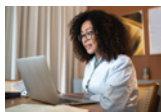
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ADCES in Practice is a journal of ideas. It's a platform for diabetes care and education specialists and other health professionals to share innovations, challenges, successes, and hopes with colleagues. That's why we are excited to dedicate this page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

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This and That . . . Summer Thoughts: ADCES26 and DSMES— Pushing Toward Progress



AMY HESS-FISCHL, MS, RDN,
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For those of us living in a region with seasons, it seems we are always looking forward to the “next one.” “I CANNOT wait for winter to be over . . . so it is spring.” “Please stop the spring rain and make it warm for summer!”

Over the past 26 years, I see seasons within those living with diabetes and their hopes and dreams of what comes next . . . the eventual cure. I have been privileged enough to work with people wearing the first insulin pumps, then continuous glucose monitors, and watching the evolution of making things better . . . starting with automated insulin delivery devices and having an actual treatment that delays the onset of stage 3 type 1 diabetes . . . and the excitement of what will be coming next.

As we push toward progress, diabetes care and education specialists are in such a unique position to make certain we remain a part of it all. Diabetes Self-management education and support (DSMES) services are critical, evidence-based programs that improve glycemic management and quality of life and reduce health care costs by decreasing hospitalizations. I do not have to remind all of you that despite these benefits, utilization is very low, with fewer than 5% to 7% of Medicare beneficiaries and 6.8% of privately insured individuals using these services within the first year of diagnosis based on data published in 2014 and 2015 . . .

and the numbers have not changed much in a little over a decade.^{1,2} We MUST change that!

With the increased use of technology and the newer treatments for type 1 diabetes, our services are more valuable than ever. We just need to remind people with diabetes and all prescribers that we are here and are ready to help. That may mean that for those of us working in a health care organization, we do things a little differently. Perhaps we need to take some lessons from the entrepreneurs in our group in order to push toward the progress to increase the utilization of DSMES.

Here at *ADCES in Practice*, or what I like to lovingly call *AIP*, we are pushing toward progress too. Some evolving columns that have been reintroduced include patient stories: diabetes care from the patient perspective and stories written by the clinician. We are also including columns from the entrepreneurs among us, lending some tips and tricks to promote our services. Please encourage patients of yours to submit something, or if you want to write up a success story or a unique teachable moment in DSMES, I would welcome the submission. Also, be sure to reach out with any other suggestions for the “Organizations to Know” column, where we highlight groups that are doing important work in the diabetes space.

Also, we are pleased to introduce the new *ADCES in Practice* Editorial Advisory Board. Their role is to review manuscripts throughout year and assist the editorial team in identifying authors, reviewers, and content for its issues. The 2026 board is:

- Joni Beck, PharmD, CDCES, BC-ADM from Oklahoma City, OK
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- Lorena Drago MS, RDN, CDN, CDCES from Greenwood Lake, NY

Thanks to all of you for agreeing to assist with *AIP*!

Before I close, I wanted to get everyone excited for August and ADCES26, which will be held in Columbus, Ohio! In addition to the amazing lineup of content that will be delivered there, I wanted to take a moment and give some suggestions of cool things to do while there—I want to thank Liz Beverly for all these great ideas!

For those with an adventurous outdoor spirit who has a little extra time, [Hocking Hills State Park](#), which is an hour outside of Columbus, is for you! I am planning on coming in early just to hit the trails and hike to Old Man's Cave! A few other places that I will definitely be visiting include:

- [Franklin Park Conservatory and Botanical Gardens](#)
- [COSI – Center of Science and Industry](#): No. 1 science museum in the country 5 years in a row!
- [Columbus Zoo](#): just in case you did not know, this was Jack Hanna's zoo until he retired
- [Columbus Crew soccer team](#) have games on August 7 and 11
- [North Market](#) is a historic market filled with local vendors and artisan food.

I look forward to seeing you at the conference . . . and maybe at some cool places in the Columbus area! Be safe out there and thanks for all you do! ■

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Did You Make the “Right Turn” on the Highway?



President

KATHERINE S. O'NEAL, PHARM.D.,
MBA, BCACP, CDCES, BC-ADM,
AE-C, CLS, FADCES, FAPHA

It's not too late! Grab your keys, jump in your car, grab a few of our diabetes care and education specialists family members along the way, buckle up, and as they say, hit the *pedal to the metal*! Woohoo . . . We have a family reunion to get to—ADCES26 in Columbus, Ohio, August 7-10!!!

As I approach my ultimate destination as president of ADCES, I am backing off the pedal and cruising into Columbus, enjoying the sights and sitting on the edge of my seat with anticipation. I can't help feeling overcome with excitement and energized for all the possibilities for our diabetes care and education specialists family. I am also filled with immense gratitude and appreciation to have this opportunity to serve as your 2026 President. From the bottom of my heart, thank you!

This year's conference theme is "Put Your Expertise Into Action." We have 116 amazing education sessions lined up across 6 tracks: (1) psychosocial/behavioral health; (2) cardiometabolic conditions and treatment options; (3) equitable care for diverse individuals and populations; (4) innovations in care delivery; (5) lifestyle, nutrition, and prevention; and (6) technology integration. Our keynote speaker on Friday morning, Dr. Whitney Casares, will share her Centered Life Framework to help us become

the person we were meant to be. On Saturday morning, our general session speaker, Dr. Sherita Golden, will challenge you to put your expertise into action with innovations in diabetes care. And on Sunday morning, Dr. Anand Iyer will help us imagine the unimaginable with the transformation of artificial intelligence and health care.

I would also be remiss not to mention my passion and continue the conversations around implicit bias, cultural humility, and health literacy. I encourage you to keep the 4 C's in mind as you attend sessions: curiosity, comfort, clarity and confidence.¹ This stands for (1) being open to explore areas of ignorance, discomfort, and difference with accountability and responsiveness; (2) getting comfortable with discomfort; (3) understanding yourself and how other people see you; and (4) putting it all together. If we approach learning with the 4 C's, we will be taking a step in the right direction toward improving cultural humility, minimizing implicit bias, and improving patient outcomes. I am confident you will leave ADCES26 with many new ideas to take your expertise to the next level.

If this didn't get you excited for ADCES26, I have more! I am excited to meet new family and reconnect with others. I invite you all to the CB/LNG/COI reception on Thursday evening

from 5-6:30 pm ET. This is a fantastic opportunity to meet and connect with “extended family” in each state.

And wait, there’s more! Several COI groups will also be represented at this reception as well. You don’t have to be a “member” of these groups. It’s an opportunity to come learn more, enjoy great fellowship, and get involved!

Family members also call on each other for help, so I am calling on each of you for help! ADCES needs you. There are so many ways to get involved: vote on future leaders (your vote matters!), join committees (the call for committee volunteers typically comes out mid-August), and join CBs/LNGs/COIs. We have many committee opportunities, including Planning Committee, Advocacy, Awards, CE Reviewers, Favorably Reviewed, Fellows, Inclusion Council, MAC Co-Facilitators, Professional Practice, Research, and Technology.

Join the party on Saturday evening with ADCES Night Out and dance the night away. Wait, we’re not done yet! Keep your dancing shoes on and come support the ADCES Foundation at the ADCES Celebration Event on Sunday night and keep the dancing going. As Kool & The Gang would say, “This is your celebration, Celebrate good times, come on!” Come celebrate all the great work you all do each and every day for people with or at risk for diabetes. Yahoo! I can feel the energy already! You’re not going to want to miss *the* conference of the year . . . the possibilities are endless!

I look forward to seeing you all in Columbus.
Travel safe! ■

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1. Wong A. Understanding cultural competence and humility. March 10, 2022. Accessed April 7, 2026. <https://www.insidetrack.org/blog/understanding-cultural-competence-and-humility>



New Updates in **Hypertension Management** for People With Diabetes

HANNAH HINKLEY, MELISSA ALSOP, YOSRA ABDALLATIF, AND
JOHN BUCHEIT , PHARM D, BCACP, CDCES, FCCP, FADCES, AACC

Cardiovascular disease (CVD) is the leading cause of death in the United States, and one of the most modifiable risk factors for CVD is hypertension. A diabetes care and education specialist (DCES) commonly encounters this condition as they holistically help people with diabetes improve their cardiometabolic health. New recommendations from the 2025 hypertension guideline developed by American Heart Association (AHA) and American College of Cardiology (ACC) stress the urgent need to improve hypertension care. Perhaps most concerning are the hypertension control rates that estimate only 46.7% of people with hypertension in the United States are able to achieve a blood pressure (BP) <130/80 mm Hg.²

Hypertension and diabetes are common overlapping comorbidities. The 2025 ACC/AHA guideline highlights the Framingham Heart Study, which found 50% of adults with diabetes were previously diagnosed with hypertension.³ The cardiovascular risk is additive because both hypertension and diabetes independently increase the risk for adverse outcomes. Consequently, holistic care of people with diabetes requires dual management of BP and blood glucose.

The purpose of this article is to provide an overview of the important updates from the 2025 ACC/AHA hypertension guideline related to the management of people with diabetes.

Measurement and Blood Pressure Staging

The 2025 ACC/AHA guideline recommends patients monitor their out-of-office BP to detect white coat and masked hypertension. Ambulatory blood pressure monitoring (ABPM) and home blood pressure monitoring (HBPM) are the methods proposed by the 2025 ACC/AHA guideline for checking BP at home. An ABPM is worn by the patient for 24 hours and automatically checks BP at select intervals, including morning and nighttime readings. ABPM has traditionally been considered the gold standard for measuring BP outside of the clinic setting but is not often readily available, and studies have failed to demonstrate a consistent benefit over HBPM. As shown in Table 1, HBPM requires individuals to check their blood pressure at select times over 7 days to determine an average BP. It is important that validated devices are utilized to ensure readings are accurate. A list of validated devices can be found at validatebp.org.²

Office-based measurements remain the most common method for evaluating BP. Automated oscillometric devices with validated algorithms continue to be preferred over auscultatory methods in the 2025 ACC/AHA guideline. Importantly, at least two readings on separate occasions are needed for appropriate evaluation of blood pressure. The classification of high BP based on office readings is listed in

Table 1 Home Blood Pressure Measurement Recommendations

Device and cuff	Recommend a cuff from validateBP.org and make sure the cuff size is appropriate
Avoid	Avoid smoking, caffeinated drinks, and exercising for at least 30 minutes before the measurement
Position	Arm should be supported and placed at heart level
Wait	Wait 5 minutes before taking a measurement and place feet flat on the floor with back supported
Relax	Do not watch TV, use cell phone, or talk to others while measuring blood pressure
Multiple readings	Check 2 readings at least 1 minute apart in the morning and 2 readings 1 minute apart at bedtime
Document and share	Record the values and share with a health care provider

Table 2 Blood Pressure Classification

Classification	Systolic blood pressure	Diastolic blood pressure
Normal	<120 mm Hg	<80 mm Hg
Elevated	120-129 mm Hg	<80 mm Hg
Stage 1	130-139 mm Hg	80-89 mm Hg
Stage 2	≥140 mm Hg	≥90 mm Hg
Severe hypertension	>180 mm Hg	>120 mm Hg

Table 2. Despite the emphasis on automated office devices, errors in patient preparation and technique can still result in inaccurate measurements in practice.² Given the importance and complexity of measuring BP, the DCES is well positioned to aid in proper assessment and monitoring practices to ensure optimal patient outcomes.

Updates to Assessing Risk in People With Hypertension

The 2025 hypertension guideline adopted the Predicting Risk of Cardiovascular Disease Events (PREVENT) calculator as the primary tool for risk assessment. There are 3 PREVENT calculators developed by AHA: (1) PREVENT CVD, (2) PREVENT ASCVD (atherosclerotic cardiovascular disease), and (3) PREVENT HF (heart failure). Specifically, the PREVENT CVD calculator is recommended to estimate a patient's risk of CVD, including heart attack, stroke, and HF. The AHA developed the PREVENT calculator using patient-level data between 1992 and 2017 from 25 data sets involving over 3 million people. Khan et al⁴ authored the AHA document and also reported the PREVENT calculator model was externally validated with an additional 21 data sets, meaning that collectively, the PREVENT calculator was tested in over 6 million individuals.² Importantly, the PREVENT CVD calculator replaces the ASCVD risk estimator plus calculator based on pooled cohort equations (PCE) previously recommended in the 2017 ACC/AHA guideline.⁵

Several key differences exist between the ASCVD risk estimator plus and the PREVENT calculator. The PREVENT CVD calculator includes short-term (10-year) and long-term (30-year) estimates for total CVD, including HF and ASCVD,

whereas the ASCVD risk calculator estimates the 10-year and lifetime risks for ASCVD (stroke, myocardial infarction, or death from either). Whereas the ASCVD risk plus calculator included race, the PREVENT calculator eliminated this factor and instead included an option to enter the patient's zip code to capture the risk from social determinants of health. Removing race from the risk calculator allowed for the elimination of race as a biological predictor of CVD rather than the social construct that it is. The PREVENT calculator also includes the option to input a patient's estimated glomerular filtration rate (eGFR), hemoglobin A1C, and urine albumin creatinine ratio. Finally, the PREVENT calculator can estimate the risk of CVD for patients as young as 30 years, which is 10 years younger than the ASCVD risk calculator. Understanding the variables and outcomes associated with risk assessment tools is essential for clinicians to develop treatment plans and to educate patients on their estimated risk.⁴

Risk-Based Decision-Making

For individuals with stage 1 hypertension without comorbidities, a PREVENT CVD estimate should be calculated. Pharmacological treatment is recommended at a threshold of 7.5%. If the PREVENT CVD score is <7.5%, a trial of nonpharmacological therapy should occur for 3 to 6 months. Importantly, this is a lower threshold than the previously recommended 10% ASCVD risk using the PCE. People with clinical CVD, chronic kidney disease (CKD), diabetes, or a PREVENT 10-year risk >7.5% should initiate pharmacological treatment immediately at stage 1 hypertension.²

Nonpharmacologic Therapy

Once an adult is diagnosed with hypertension, it can lead to microvascular damage, which reinforces the importance of prevention achieved through nonpharmacologic therapies, especially in adults with elevated BP. Nonpharmacologic interventions are largely consistent with the previous 2017 ACC/AHA guideline, and they remain a foundational aspect of BP management.⁵

However, lifestyle changes are not only beneficial for adults without hypertension. These interventions can delay worsening of hypertension and reduce pill burden. The four main approaches to lifestyle interventions are nutrition changes, specifically, following a DASH (dietary approaches to stop hypertension) eating pattern, reducing alcohol intake, increasing physical activity, and reducing stress. Alongside the 4 main approaches to lifestyle interventions, weight loss is recommended. All adults who meet criteria for overweight or obesity are recommended to lose at least 5% of their body weight. Improvement in any 1 lifestyle factor listed has the ability to decrease BP and should be discussed as part of the hypertension treatment plan.²

Several new lifestyle recommendations are noteworthy in the 2025 ACC/AHA guideline. Potassium-based salt substitutes (eg, potassium chloride, KCl) are an evidence-based strategy that lowers sodium consumption while experiencing the benefits of potassium. Importantly, this strategy is not recommended in people with CKD due to the risk of hyperkalemia. Stress management through transcendental meditation, yoga, and breathing exercises have also shown beneficial effects on BP reduction. Lastly, stronger guidance for avoiding any amount of alcohol is optimal for reducing BP. These recommendations are several highlights for nonpharmacological management, but readers are encouraged to review the full ACC/AHA guidelines section on nonpharmacological management interventions.²

Pharmacotherapy Management

Adults with stage 1 hypertension should start with a single antihypertensive agent. Most adults with stage 2 hypertension or blood pressures $\geq 20/10$ mm Hg above goal should begin drug therapy with 2 antihypertensive medications rather than monotherapy. Dual therapy achieves faster BP reduction and improves the likelihood of reaching BP goals. To reduce barriers to optimal medication administration, the ACC/AHA guidelines strongly favor the use of single-pill combination (SPC) therapy whenever possible.

Importantly, there are many generic SPC available, which offers an affordable treatment for many. Treatment with SPC therapy also reduces pill burden and increases the ability of the patient to take medications as prescribed while maximizing therapeutic benefit compared to prescribing the same agents as separate medications.² The emphasis on SPC is an important change with many available treatment options. The DCES is a valuable resource in helping patients and providers identify SPCs to reduce costs and simplify medication administration.

Initial drug therapy, including for those with diabetes, continues to include angiotensin-converting enzyme inhibitors (ACE-Is), angiotensin II receptor blockers (ARBs), long-acting dihydropyridine calcium channel blockers, and thiazide-type diuretics. The preference for these medication classes is based on their tolerability, BP lowering, and cardiovascular benefit. Other antihypertensive treatment options should only be considered after the initial treatment choices are exhausted, including beta blockers, unless there is a compelling indication necessitating a specific treatment (eg, heart failure with reduced ejection fraction and beta blocker treatment).²

Most adults diagnosed with hypertension, especially those with diabetes, are encouraged to reach a BP goal of $\leq 130/80$ mm Hg, and medication should be initiated if their BP is above 130/80 mm Hg. Additionally, more stringent systolic BP (SBP) goals have been linked to a decrease in the incidence of CVD and total mortality; thus, the 2025 ACC/AHA guideline encourages a more intensive BP goal of $<120/80$ mm Hg. Adults with hypertension and diabetes who develop CKD are indicated for ACE-Is or ARBs. The guideline defines CKD by an eGFR <60 mL/min/1.73 m² or the presence of albuminuria ≥ 30 mg/g. In patients with CKD, ACE-Is and ARBs lower the amount of urine protein levels, increase time to the development of end-stage kidney disease, and reduce cardiovascular events.²

The ACC/AHA guideline also provides updates

on the diagnosis and treatment recommendations for patients with resistant hypertension. Resistant hypertension is defined as a person undergoing treatment with 3 or more hypertensive agents, including a diuretic, who continues to have elevated BP that is above goal or those who are on 4 or more antihypertensive medications with BP at goal. Before patients can be identified as having resistant hypertension, clinicians must first rule out pseudoresistance. Common causes of pseudoresistant hypertension include inaccurate BP measurements, white coat hypertension, medication interactions, and inadequate medication administration.² It is important to assess for adequate medication-taking behaviors before treating resistant hypertension. Individuals with resistant hypertension have a 50% increased risk of developing secondary hypertension, CVD, or end-stage kidney disease.⁶ Once a resistant hypertension diagnosis is established, a long-acting thiazide diuretic (chlorthalidone or indapamide) should replace hydrochlorothiazide. Evaluation for secondary causes of hypertension, including primary aldosteronism, should also occur.² Mineralocorticoid receptor antagonists (MRAs) are the drug class of choice for the treatment of resistant hypertension based on the PATHWAY-2 trial, which showed spironolactone was more efficacious than bisoprolol (beta blocker) and doxazosin (alpha-1 blocker). Referral to a hypertension specialist may be considered, especially when MRAs are not tolerated.⁷

Antihypertensive Effects of Diabetes Agents

There are several medications for diabetes that demonstrate beneficial effects on BP. One class of agents includes the glucagon-like peptide-1 (GLP-1) + glucose-dependent insulintropic polypeptide receptor agonists (RAs), which often are also approved for obesity. While weight loss is the main driver of lowering BP with GLP-1 RAs, it is not likely the sole mechanism. The BP lowering effects reported with GLP-1 RAs in clinical trials are variable, especially in people with and without diabetes. In a systematic review by Kennedy et al,⁸ the SBP and diastolic blood pressure (DBP)

lowering of GLP-1 RAs was approximately 5 mm Hg and 2 mm Hg, respectively. Because the weight loss effects are generally less in people with diabetes, the BP lowering effects are also attenuated. Importantly, weight loss is gradual with these agents, and maximal BP reduction may not occur for several months once patients reach their optimal dose. Careful monitoring of BP should occur for patients on antihypertensives to assess the need for deprescribing.

The sodium glucose transport-2 inhibitors (SGLT2is) have several indications beyond diabetes management, including HF and CKD, and SGLT2is are also associated with improvements in BP. A systematic review by Baker et al,⁹ found that the use of SGLT2is in people with type 2 diabetes reduced SBP and DBP by approximately 4 mm Hg and 1.6 mm Hg, respectively. Initial BP lowering effects of SGLT2is are predominantly due to natriuresis, with other mechanisms likely contributing to sustained reductions in BP over time. Because people with hypertension and diabetes often have a high medication burden, clinicians should prioritize agents with the dual purpose of lowering BP and improving glycemic control.

Evidence Supporting Changes in Treatment Goals

The 2017 ACC/AHA guideline lowered the blood pressure goal for most individuals, including those with diabetes, to <130/80 mm Hg; however, the 2025 ACC/AHA guidelines now recommend to further aim for a SBP <120 mm Hg in patients who are at a high cardiovascular risk, including those with diabetes.^{2,5} Importantly, this recommendation referred to individuals already at or below the 130/80 mm Hg and tolerating antihypertensive treatment. Further intensifying blood pressure goals to <120/80 mm Hg in these populations has consistently shown to reduce major cardiovascular outcomes with only a mild increase in adverse effects in clinical trials (Table 3).

A recent meta-analysis by Guo et al¹⁰ summarized the safety and efficacy outcomes

Table 3 Summary of Outcome for Intensive Blood Pressure Goals in Clinical Trials^{10,11}

Trial	Population	Comparators	Outcomes and adverse effects
SPRINT	High-risk adults without diabetes	SBP <120 mm Hg vs 130-140 mm Hg	Lower CV events and all-cause mortality with intensive control Minor increase in adverse effects
ACCORD	High-risk adults with type 2 diabetes	SBP <120 mm Hg vs 130-140 mm Hg	No significant difference in primary CV outcome Increase rate of adverse events in the intensive group
HOT	Adults with hypertension Subgroup analysis of people with type 2 diabetes	DBP targets of 80 mm Hg vs 85 mm Hg vs 90 mm Hg	Lowest amount CV events in DBP <80 mm Hg group, especially in the diabetes subgroup No major increase in adverse events reported
BPROAD	High-risk adults with diabetes in an East Asian population	SBP <120 mm Hg vs SBP <140 mm Hg	Intensive treatment reduced major CV outcomes Increase in adverse events in the intensive group
STEP	Older adults (predominantly East Asian)	SBP 110-130 mm Hg vs SBP 130-150 mm Hg	Intensive treatment reduced stroke and CV events Increase in adverse events in the intensive group
ESPRIT	High-risk adults with and without diabetes (predominantly East Asian)	SBP <120 mm Hg vs SBP <140 mm Hg	Intensive treatment reduced major CV outcomes Increase in adverse events in the intensive group

Abbreviations: CV = cardiovascular; DBP = diastolic blood pressure; SBP = systolic blood pressure.

of more intensive BP goals (SBP <120 mm Hg and <130 mm Hg) from ACCORD BP, SPRINT, ESPRIT, BPROAD, STEP, and CRHCP. The analysis demonstrated that intensive SBP goals produced a relative risk reduction in major cardiovascular events by approximately 24% compared to standard targets and an absolute risk reduction of 1.73% (NNT 58). Although adverse events had an absolute increase of 1.82% (NNH 55), the most common adverse events were acute kidney injury and reduction in kidney function.¹⁰ Together, these findings reinforce guideline recommendations for a BP goal <130/80 mm Hg and an SBP goal <120 mm Hg in select high-risk patients who tolerate treatment.

Conclusion

The 2025 ACC/AHA guidelines provide important updates while maintaining many recommendations from the 2017 ACC/AHA guidelines. Perhaps the biggest changes for clinicians to adopt are related to the new PREVENT CVD calculator and the targeting of a lower SBP goal (<120 mm Hg) when possible. Intensive BP targets were previously debated, but the addition of several recent randomized

controlled trials has solidified the concept that lower SBP is better as long as it can be safely attained. Importantly, the 2026 American Diabetes Association Standards of Care adopted similar language regarding SBP goals and received an endorsement from the American College of Cardiology.¹² Together, clinical practice recommendations are harmonizing their recommendations for more intensive treatment of patients with hypertension, especially in people with diabetes. ■

Author Contributions

John Bucheit: Reviewed and edited the manuscript, wrote the manuscript.

Hannah Hinkley: Wrote the manuscript, constructed the title page, constructed the reference page.

Yosra Abdallatif: Wrote the manuscript, created the tables.

Melissa Alsop: Wrote the manuscript.

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Navigating New Frontiers

Approaches to Diabetes Care Through Perimenopause and Menopause

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Perimenopause and menopause represent significant transitional phases in a woman's life, often accompanied by hormonal fluctuations that can impact glycemic management. For individuals with diabetes, these changes can present unique challenges in maintaining stable serum glucose levels. Diabetes care and education specialists (DCEs) must understand how hormonal shifts affect insulin sensitivity and diabetes self-management to provide effective guidance and support.

Hormonal Changes and Their Impact on Diabetes

During perimenopause and menopause, estrogen and progesterone levels decline, influencing insulin sensitivity and glucose metabolism. Research indicates that lower estrogen levels are associated with increased insulin resistance, which may contribute to higher fasting serum glucose levels and greater glycemic variability in individuals with diabetes.¹ Additionally,

progesterone fluctuations can lead to episodic hyperglycemia, complicating serum glucose management.²

A study demonstrated that postmenopausal women with diabetes exhibit altered glucose homeostasis compared to premenopausal women, highlighting the importance of tailored diabetes management strategies during this transition.³ Furthermore, menopause-related weight gain, changes in fat distribution, and increased visceral adiposity can further exacerbate insulin resistance, increasing the risk of cardiovascular complications.⁴

Some of these physical and functional changes can significantly alter how women perceive their bodies. Menopausal women experiencing weight redistribution and weight gain often report greater body dissatisfaction, which has been linked to increased levels of mental distress and lower self-compassion. These shifts, such as weight redistribution and weight gain, can



impact body image and overall well-being. These body image concerns can contribute to mental health challenges, which are already heightened during perimenopause and menopause and in the presence of chronic conditions, such as diabetes.⁵

Diabetes, perimenopause, and menopause are associated with increased risk of mental health concerns, such as depression.⁶ This increased risk is influenced by hormonal fluctuations that impact neurotransmitter regulation, heightened stress responses, and the burden of managing a chronic condition. Additionally, sleep disturbances common in menopause can exacerbate mood disorders, further contributing to mental health challenges. Compounding these challenges are the ongoing demands of managing a chronic metabolic illness, such as diabetes. The psychological burden of both hormonal fluctuations and diabetes management may negatively impact self-management behaviors, such as medication taking, physical activity, and dietary regulation, potentially leading to poorer

glycemic management. Given these complexities, a comprehensive approach that addresses both metabolic and mental health is essential for optimizing diabetes management during menopause.⁷

Glycemic Management Strategies

Given these changes, diabetes management during perimenopause and menopause requires a multifaceted approach. Key strategies include the following.

Personalized Medication Adjustments

Due to increased insulin resistance, individuals may require modifications to their diabetes medications, including insulin therapy or oral hypoglycemic agents. Studies suggest that metformin remains effective in mitigating insulin resistance, whereas newer agents such as SGLT-2 inhibitors and GLP-1 receptor agonists may offer additional benefits, including weight management and cardiovascular protection.^{8,9}

Lifestyle Modifications

Regular physical activity, including resistance and aerobic exercise, has been shown to improve insulin sensitivity and mitigate menopause-related changes.¹⁰ Nutritional adjustments, such as emphasizing fiber-rich foods, lean proteins, and healthy fats, can aid in glycemic management and weight management.¹¹

Monitoring and Continuous Glucose Management

Increased glycemic variability during perimenopause necessitates more frequent serum glucose monitoring. Continuous glucose monitoring has proven beneficial in identifying patterns of hyperglycemia and hypoglycemia, allowing for proactive management adjustments.¹²

Psychosocial Support and Treatment

Psychosocial interventions and integration of mental health experts into care can improve the mental health concerns associated with perimenopause, menopause, and diabetes and improve engagement in self-management behaviors.^{6,7}

Addressing Menopause-Specific Symptoms in Diabetes Care

Common menopause-related symptoms, such as hot flashes, night sweats, and sleep disturbances, can indirectly impact glycemic management. Poor sleep quality has been associated with increased insulin resistance and higher A1C levels.¹³ Implementing sleep hygiene strategies and considering behavioral interventions can support better glycemic outcomes.

Additionally, menopause is linked to an increased risk of osteoporosis, which is of particular concern for individuals with diabetes because they may already be predisposed to decreased bone mineral density.¹⁴ Ensuring adequate calcium and vitamin D intake and weight-bearing exercise are essential for bone health.

Practical Considerations for Diabetes Care and Education Specialists

To support individuals with diabetes during perimenopause and menopause, DCEs should consider the following:

- Encourage regular monitoring of serum glucose to detect fluctuations and adjust management strategies accordingly.
- Discuss potential medication adjustments with health care team to accommodate hormonal changes, mood shifts, and insulin resistance.
- Promote lifestyle interventions that address weight management, body composition, cardiovascular health, psychological health, and bone health.
- Address menopause-related symptoms that may impact diabetes management, such as sleep disturbances and osteoporosis risk.
- Prioritize mental health support to positively impact self-management behaviors and overall well-being.

By acknowledging the unique challenges of perimenopause and menopause in diabetes care, diabetes care and education specialists and other health care professionals can offer comprehensive, individualized support to improve patient outcomes. Key recommendations include continuous glucose monitoring, medication adjustments, lifestyle interventions, and prioritizing mental health to enhance overall well-being and glycemic management. ■

Author Contributions

Brian Burroughs was the primary author and led the manuscript's conceptualization, research, and writing. Angie Clinton contributed to the literature review, content development, and critical revisions. Laura Knudsen assisted with manuscript organization, editorial support, and final review. All authors reviewed and approved the final manuscript.

Guarantor Statement

Brian Burroughs serves as the guarantor of this work and takes responsibility for the integrity of the content, including the accuracy of the data and analysis presented.

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A Conversation

The Impact a Diagnosis of Type 1 Diabetes Has on a Young Man's Sexual Health and Well-Being



BRENDA JAGATIC BSCN, RN, CDCES, AND JAN STETZKA

The following is a discussion Brenda Jagatic, BScN, RN, CDCES, had with Jan Stetzka, who lives in Germany and was diagnosed with type 1 diabetes (T1D) 7 years ago, at age 25.

Brenda's husband was diagnosed with T1D at age 23 in 1983. Prior to becoming a CDCES in 2007, Brenda worked as a public health nurse in a healthy sexuality program and cohosted an award-winning live TV talk show for teens called *Let's Talk Sex Talk*.



Jan Stetzka



Brenda Jagatic BScN, RN, CDCES

Jan: Looking back to when I was diagnosed with T1D, I wish someone had talked to me about how it could affect my sex life. There was basically no conversation about it.

Brenda: A diagnosis of T1D impacts almost every facet of an individual's life. Initially, diabetes care and education specialists (DCESs) teach survival skills that help people with diabetes (PWD) incorporate T1D into their daily activities, covering topics such as:

- 1. Eating:** learning what foods will impact their glucose, how to count carbohydrates, and how to match insulin to their food intake.
- 2. Exercising:** how to monitor glucose before, during, and after exercise and how to prevent/manage high and low glucose related to exercise.
- 3. Driving:** the importance of safe glucose targets, testing glucose before driving, and how to reduce the risk of hypoglycemia when driving.
- 4. Sleeping:** monitoring glucose before, during, and after sleep; how to prevent and manage high and low glucose during sleep and get fasting glucose to target.

Jan: Yes, survival skills matter—but you learn them fast because you need to. There's no other option. A lot of health care stops there, though. We also need to talk about what it is like to live with T1D every day.

Brenda: Would it be helpful if your DCES asks: How is your T1D impacting your life day to day? Or as Joe Solowiejczk, CDCES, has suggested: What is the most difficult thing about managing your diabetes?

Jan: Yes, I like those questions.

Brenda: When an individual is referred for diabetes self-management education and support, a DCES reviews the ADCES7 Self-Care Behaviors. These behaviors provide PWD with a framework to actively participate in the medical management of their diabetes: healthy coping, healthy eating, being active, taking medication, monitoring, reducing risk, and problem-solving. A DCES could explore an interest in discussing

intimate relationships when reviewing “being active” by acknowledging that sex is a form of exercise.

New Diagnosis of T1D and Sex: Hypoglycemia and Hyperglycemia

Jan: Yes, like any exercise, it helps to check your glucose before sex and keep your testing supplies and a fast-acting carb within reach so you can treat a low glucose during or after sex, if necessary.

It is also important to note:

- both alcohol and sex can lower glucose and together could cause a severe low glucose
- high glucose can affect desire and performance, and over time, high glucose could lead to issues with erectile dysfunction.

Sharing Your Diagnosis with a New Partner

Brenda: This discussion leads to a question of when and how to tell a new partner or new love interest that you have T1D. I like how Alan Uphold, in a diaTribe blog, shared how he discloses his T1D diagnosis: “I know we don’t know each other that well yet. But I like you, and I feel like I should tell something. I have diabetes.”

Jan: That is a tricky timing question. I mean—who knows when it is the “right” time to say, “I love you”? You must go with your gut. But unlike a too-fast “I love you,” sharing “I have type 1 diabetes” carries far less risk and usually sets the tone for an honest getting-to-know-you phase.

So yes—I agree with Alan: the sooner, the better.

Impact of Diabetes on Intimate Relationships

Brenda: An article published in diaTribe stated, “while everyone experiences some form of sexual anxiety at some point in their lives, PWD have an added level of stress.” Would you agree, Jan?

Jan: Absolutely. The first time having sex as a person with T1D was strange from several perspectives. Like the first time exercising,

I was nervous and didn’t know exactly what to expect. I didn’t know exactly how my glucose levels would respond. Usually, I have no problem with someone seeing my sensor on my arm. But somehow it is weird: being intimate and naked with a woman while still wearing a sensor? I can’t shake the feeling that I’m naked in 2 ways. My chronic condition becomes visible. In everyday life, it’s mostly invisible. It’s counterproductive and somehow out of place, but the thoughts are still there: Can I even perform properly? And of course, “perform” isn’t a nice word. But the thought comes anyway. And the fear of not being good enough is also present.

Brenda: Jan, thank you for courageously sharing your personal experience, your vulnerability.

Jan: I am opening to the world so others can heal.

Impact of Chronic Disease on a Man’s Self-Esteem

Brenda: Jan, what you shared reflects how the diagnosis of a chronic disease like T1D can impact a man’s identity and sense of masculinity:

Living with a chronic disease threatens men’s sense of masculinity and self-image, as well as their perceived ability to fulfill expected social roles. Social images of men’s bodies influence how men express their emotions, attributes, and attitudes, or acknowledge the need for and seek social affirmation.¹

Changes caused by chronic illness are devastating in and of themselves. However, for men, there can be an additional layer of pain in that these changes implicate what they see as their male identity. . . . Chronic illness evokes feelings of vulnerability, fear, and sadness. Many men struggle with allowing and expressing those normal feelings, believing that real men should be stoic.²

Jan: In my experience, the first dates were the hardest. I felt weak. I was stressed and anxious about how my date would see my disease.

But a few years later, I had a moment that showed me how much things can change. I was on a date, we were walking through a beautiful park, talking about life. Without thinking—just doing what I’d done thousands of times—I injected insulin. My date stopped and said: “It’s kind of hot that you can just keep walking and talking while you inject insulin.”



Jan Stetzka enjoying life.

Some questions DCEs can ask:

- How is your T1D impacting your life day to day?
- What is the most difficult thing about managing your diabetes?

Diabetes and Sex-Tips for Overcoming Barriers to Intimacy³

1. The first step is to accept your diabetes.
2. Accept it is part of you, but it does not have to define you.
3. Accept that your “diabetes” will be with you during sex.
4. Sex is not about “performance”; it is about connection.
5. Most important: be good to yourself.
6. If you have issues, challenges seek help.

Healing the Trauma of Being Diagnosed With T1D

Brenda: Amber Clour, diagnosed with T1D in 1984, wrote about how diabetes impacts romantic relationships: “being diagnosed with diabetes is a traumatic event. . . . Self-compassion is key to healing trauma and building positive relationships. We have to learn to love ourselves first, diabetes and all.”

Jan: That hits home. In the first months, I was trying my best, but it felt like I was fighting my own body. I couldn’t accept bad days, and it messed with me mentally. I just wanted life to be normal again. But once you’re diagnosed with T1D, life changes fast. One of the first steps toward really living again is accepting that some days, T1D is limiting. That acceptance hurts, but it also opens a door and is an important first step. We Type 1s live closer to the edge than most people do. Every day.

When you accept T1D, when you open up, when you go deeper, something shifts.

Seven years in, I can say I feel more whole as a human being. The forced, sometimes horrific experiences with T1D played a big part in that.

T1D shapes everyday life, and it also touches the most beautiful parts of life: dating, connecting with someone you truly like, sex, deep talks, closeness.

I genuinely believe T1D can become an opportunity for a deeper kind of peace.

In German, there’s a word for it: “Seelenfrieden.” It is one of those German words that does not quite have a perfect translation. It is close to “peace of mind,” but word by word translated, it’s more peace of *soul*.

I want every person with type 1 to find that. Peace of soul.

It’s there. Waiting for you.

Closing Thoughts

DCEs have a unique opportunity. When we step outside our comfort zone and are willing to explore issues pertaining to the sexual health and well-being of young men diagnosed with T1D,

we can augment our potential to have a positive impact on their quality of life, their self-esteem, and their intimate relationships as they work toward accepting their diagnosis. And as indicated in the ADA 2026 Standards of Care,⁴ Eliot LeBow, LCSW, CDCES, recommends we refer our patients for counseling if they need additional help to work through these issues. ■

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Author Contributions

Because of similar interests around diabetes, BJ had connected with JS on LinkedIn. BJ subsequently suggested they cowrite an article based on his shared experience with the topic and her personal and professional experience related to the topic.

BJ set up an “interview” framework for their article based on her experience coauthoring an article with Susan Weiner for *Endocrine Today*.

BJ and JS then had several Zoom calls and subsequently created/updated/reviewed/edited the manuscript via email.

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Additional Resources:

The Secrets of Living and Loving with Diabetes – Three Experts Answer Questions You’ve Always Wanted to Ask. Janis Rozsler, RD, CDE, LDN; William Polonsky, PhD, CDE; and Steven V. Endelman, MD

Sex & Diabetes – For Him and For Her. Janis Rozsler, RD, CDE, LDN and Donna Rice, MBA, BSN, RN, CDE.

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Reimagining Diabetes Self-Management Education and Support (DSMES) Services

Complementing the Four Critical Times With Continuous, Peer-Driven Support

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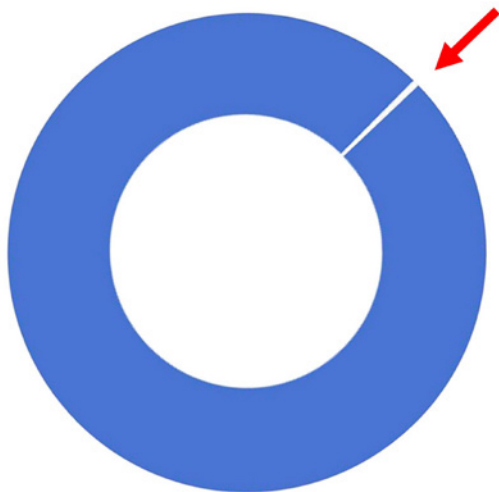


Figure 1. Diabetes is largely self-managed (blue) relative to time spent with their health care team (white). Adapted from: https://www.researchgate.net/figure/Fig-1-Symbol-representing-peer-support-offered-by-the-DOC-courtesy-of-the-Diabetes_fig1_275361264.

It is estimated that the person with diabetes spends less than 1% of their life with their health care team and therefore, by default, is self-managing their condition during the remaining 99% of the time spent on their own, away from the care team (see Figure 1).¹ According to the American Diabetes Association (ADA), diabetes self-management education and support (DSMES) “addresses the comprehensive blend of clinical, educational, psychosocial, and behavioral aspects of care needed for daily self-management and provides the foundation to help all people with diabetes navigate their daily self-care with confidence and improved outcomes.”² The DSMES national standards recommend that DSMES services include activities that support people with diabetes (PWD) to implement and sustain self-management behaviors and strategies to improve diabetes and related cardiometabolic conditions and quality of life on an ongoing basis.¹ This may include the involvement and support of family members, caregivers, and peers. Although the final “S” in DSMES stands for “support,” it can be challenging to incorporate as part of DSMES services in its existing structure. In addition, the support provided is often more medical in nature and does not address the 99% of time spent self-managing away from the clinical care team. We propose the synergistic integration of peer support services in an ongoing manner to complement DSMES services.



Not New, but Tried and True: Early Origins of Peer Support and Emergence in Diabetes Care and Structured Programs

Peer support is not a new concept, tracing its roots back to late 18th-century France, when Jean-Baptiste Pussin employed recovered patients to assist with care, promoting the therapeutic value of shared experiences.³ In 1909, Clifford Beers, based on his personal experiences, founded the National Committee for Mental Hygiene in the United States, advocating for peer-led mental health recovery.⁴ In 1918, Dr Elliott P Joslin published *A Diabetic Manual for the Mutual Use of Doctor and Patient*, emphasizing education and shared management among people with diabetes.⁵ In 1934, Dr RD Lawrence, a British physician with diabetes, cofounded the Diabetic Association (now Diabetes UK), promoting peer support and patient advocacy.⁶

From informal roots, peer support evolved

in the late 20th century into structured programs designed to provide continuous education, psychosocial encouragement, and empowerment.⁷ Integration into DSMES services has demonstrated improved health outcomes and enhanced engagement, especially in underserved populations.⁸ DSMES services integrating peer support are cost-effective, improve glycemia, encourage self-care, support mental well-being, and reduce hospitalizations, leading to cost savings and thus aligning well with value-based care models.⁹

Peer support may be particularly relevant for women because women experience 25% worse health outcomes compared to men. Their symptoms are often dismissed, leading to delayed care and feelings of isolation.¹⁰ Between 2023 and 2024, discussions on women's health on Reddit increased by 37%, indicating that women are seeking health information from

nontraditional sources and seeking peer validation and community.¹⁰ This points to the need for integrating peer support services with formalized DSMES services.

DSMES and Peer Support: Distinct but Complementary

DSMES is structured, evidence-based, and provided according to national standards by credentialed professionals, typically the diabetes care and education specialist (DCES), in person or virtually and/or through digital health platforms.¹ Multiple professional groups representing multifaceted disciplines in a consensus statement identified 4 critical times when DSMES should be provided, including at diagnosis, annually (or more often if needed to achieve goals), when complicating factors occur, and during life and care transitions.¹¹ DSMES includes education and skill building around the Association of Diabetes Care and Education Specialists's (ADCES) ADCES7 Self-Care Behaviors: healthy eating, being active, monitoring, taking medications, reducing risks, problem-solving, and healthy coping.¹² However, despite evidence as to its clinical efficacy and cost-effectiveness,¹³ DSMES is underutilized, with fewer than 5% of Medicare beneficiaries with diabetes and fewer than 7% of privately insured people with diagnosed diabetes participating in covered DSMES services.¹⁴⁻¹⁶ The ADA and the ADCES strongly advocate for all individuals with diabetes having access to this critical service proven to improve health outcomes.¹ DSMES

services can and should be incorporated in evolving models of care, including accountable care organizations, patient-centered medical homes, population health management programs and services, and value-based payment models, with a shift toward a continuous, data-informed approach to provision of services.

By contrast, peer support is delivered in flexible formats (in person, online, text, phone, apps, etc) and includes evidence-based methods. This offers intentional variety, meaning individuals seek the type and kind of support they need at different times in their journey. Peer support offers emotional and practical support, social connection, and behavior modeling and can help in reducing diabetes distress and burnout and enhancing self-management support.¹⁷⁻¹⁹ Table 1 delineates the differences demonstrating the complementary nature of DSMES and peer support. Peer support can help fill in the gaps between clinical encounters and education sessions.

Combining DSMES and Peer Support Leads to Improved Glycemia, Improved Quality of Life, and Lower Health Care Costs

Although initial DSMES is necessary, it is not sufficient for sustaining a lifetime of diabetes self-management, with initial improvements in outcomes diminishing 6 months after conclusion of the intervention.¹ Peer support enhances DSMES impact, especially at transitions and posteducation drop-off points.^{17,18} In a systematic review, researchers found DSMES integrated with peer support effectively enhanced glycemia in people with type 2 diabetes, with programs with smaller participant groups, shorter interventions, weekly meetings, and closed group sessions the most effective.²⁰

DiabetesSisters is a peer support community for women with or at risk for diabetes offering multiple pathways for engagement for members. DiabetesSisters is a value-based peer support model supported by quantitative and qualitative research. Data generated through this model demonstrates the value of peer support as a

Table 1 Both Diabetes Self-Management Education and Support (DSMES) and Peer Support Are Essential for Sustainable Self-Management

DSMES	Peer Support
Teaches initially "what" to do	Encourages and helps sustain motivation and self-efficacy
Based on clinical evidence	Based on lived experience and clinical evidence
Delivered by credentialed professionals	Delivered by individuals living with diabetes
Structured and formal	Loosely structured and informal
Provided at critical times	Available on an ongoing basis
Targets clinical outcomes, quality of life, and cost savings	Targets behavioral, emotional, and social support

complement to DSMES services. An annual survey is conducted among stakeholders and members of the DiabetesSisters Community. Results of the 2024 survey have been reported. Highlights of the survey are reported in Table 2 and suggest possible synergies of linking DSMES services with a peer support community like DiabetesSisters. It is noted that respondents to the survey are likely more engaged in their own health care and thus have a higher reported participation in DSMES services than reported nationally.

Reimagine DSMES: From Just in Case to Just in Time

DSMES interventions include activities that support people with diabetes to implement and sustain self-management behaviors and strategies to improve diabetes and related cardiometabolic conditions and quality of life on an ongoing basis. Because family members, caregivers, and peers can be an effective resource for ongoing support but often do not know how to help, it can be beneficial to include family members and caregivers in diabetes care, education, and support services. A pilot study investigated incorporating a peer supporter into the DSMES program and reported enhanced self-management capability in following the diabetes treatment plan.²¹ Other sources of ongoing support could include referral to local community-based organizations, community health workers, and informal and organized in-person and online peer support.

Connecting individuals with diabetes to technology-enabled solutions, such as connected devices, mobile apps, digital therapeutics, online programs, and peer groups, in the local or online community can encourage practical integration of diabetes self-management and psychosocial support into the existing daily routine.¹ A growing suite of connected technologies enable people to gather data as they live their lives; AI-powered digital health platforms can integrate and analyze the data and provide personalized 24/7 coaching, supporting people as they self-manage their chronic conditions while away from the care team.²² Clinicians can remotely monitor

Table 2 Results of 2024 Diabetes Sisters Member Stakeholder Survey

• 57.3% of respondents reported they had participated in formal DSMES services • 94.95% of these respondents reported completing the full DSMES program • 72% reported completing the DSMES program over 5 years ago • 6.2% reported completing the DSMES program less than 1 year ago
• 42.9% of respondents reported they had not participated in formal DSMES services • 95.6% of these respondents reported not being offered DSMES
• 41.6% of respondents visit the DiabetesSisters website a few times per month accessing the following: • blogs/newsletters (77.9%) • on-demand webinars/videos (38.6%) • meetings (33.9%) • live webinars (32.1%) • workshops (14.3%)
• Respondents report accessing a variety of educational topics, including food and nutrition, exercise, weight management, diabetes management, complications, and technology

population-level data to assess the health of their populations, efficiently identifying who needs human intervention from the clinical care team and when, whether the intervention is a brief coaching nudge or reminder or an adjustment in therapy or behavioral, peer, or social support. The clinical team interacts with individuals in a continuous feedback loop,^{23,24} shifting from providing just-in-case education to providing just-in-time, data-informed education and support on a continuous (on-demand) basis where and when needed, including linking at-risk individuals to local resources and identifying and connecting to available peer support programs and resources.

The Diabetes Care and Education Specialist (DCES) Leads in Integrating Peer Support

The identify-configure-collaborate (ICC) framework is a standardized way to integrate diabetes technology into clinical practice.²⁵ The framework can be expanded to all aspects of diabetes care, including peer support. The DCES can lead in using the ICC framework to help people with or at risk for diabetes to identify and adopt the support and services that will best meet their needs and enable them to best collaborate and partner with their care team. To incorporate

the ICC framework into developing a support plan, the DCES can do the following:

- **Identify:** Assess needs and discuss available peer support resources, such as DiabetesSisters.
- **Configure:** Help individuals join a peer support community and discuss plans for integrating peer support into their self-management activities, for example, perhaps agree on a goal, “I will attend 1 DiabetesSisters live webinar in the next month” or “I will attend 1 in-person DiabetesSisters meetup in my area in the next month.”
- **Collaborate:** At the next touchpoint, discuss what peer support services have been used since the last touchpoint and in what ways they supported (or not) the self-management plan. Explore other challenges and opportunities the individual is experiencing and consider potential peer support or technology solutions that may be of help at this point in the individual’s diabetes journey.

Figure 2 illustrates the potential synergistic integration of peer support services with DSMES.

By establishing referral pathways, DSMES providers can direct participants to peer support groups for ongoing motivation and real-world insights, and peer support leaders can refer individuals back to DSMES programs for structured, personalized education when new challenges arise. This bidirectional referral system ensures that people with diabetes receive both clinical guidance and the emotional, social support they need for sustainable self-management. A case study from the perspective of a woman living with diabetes describes the impact of peer support with DSMES.

Case Study

Introduction

I am a 63-year-old woman who has lived with type 2 diabetes for more than 25 years and have found peer support to be the cornerstone of my self-management success.

History

I was diagnosed with type 2 diabetes at age 37. I regularly saw a certified diabetes care and education specialist (CDCES) for approximately 1 year after my diagnosis. During that time, I managed my diabetes with diet and exercise and did not take any diabetes medications. I lost 35 pounds within the first 9 months of my diagnosis and an additional 10 pounds since then. I attended formal diabetes self-management training (DSMT) at age 48 and attended a monthly diabetes support group run by my local health department for approximately 2 years after that. The support group continually reemphasized the concepts I learned during the DSMT, especially the importance of nutrition, exercise, and goal setting. I moved to a different state and did not have access to peer support again until age 55, when I met the CEO of DiabetesSisters at a diabetes advocacy event. She told me there had been a group in my area, but the leader had recently stepped down, and she offered to train me to run the group. I have been leading peer support meetings regularly ever since, both in person and online.

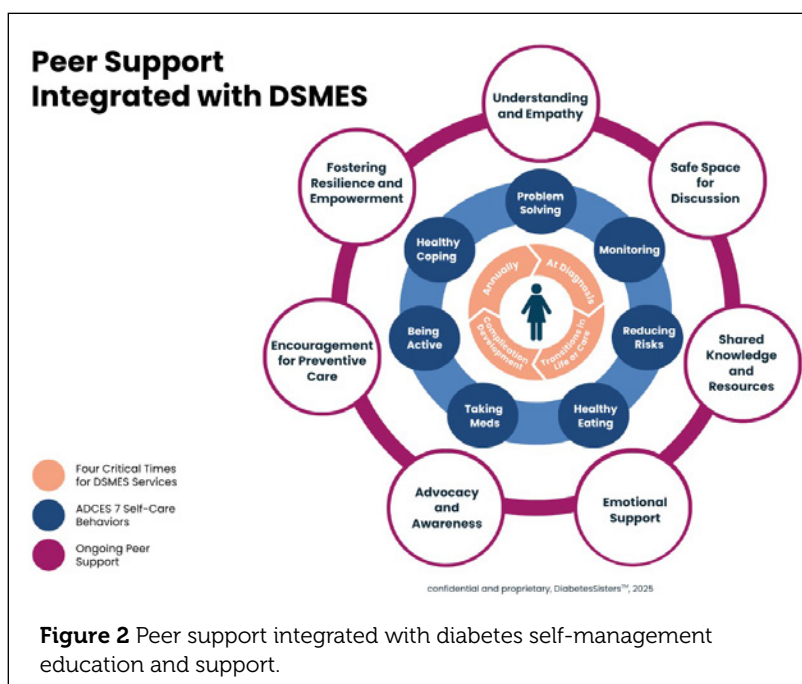


Figure 2 Peer support integrated with diabetes self-management education and support.

Medical Treatment and Social Support

Although I began taking metformin approximately 5 years after my diagnosis and a GLP-1 medication approximately 10 years after that, I credit peer support for my continued success managing the chronic disease I have lived with for more than 25 years. I only see my endocrinologist twice a year, but I have to manage my diabetes every hour of every day. Peer support has provided me with practical tips for managing my diabetes and emotional support that I do not get from my health care professionals (especially those who do not live with diabetes themselves).

When I started on the GLP-1, I had a lot of problems with morning nausea. My doctor said, "Yes, that can be a side effect." But someone in my peer support group said, "You might want to try eating very small meals and drinking plenty of water." The doctor didn't really offer any advice that helped alleviate my nausea, but the suggestion from my peer worked.

The food tips and recipes I get at our meetings are the best. For example, protein pancakes made with rolled oats, cottage cheese, and eggs are now one of my go-to breakfasts. I make extras and freeze them for a quick morning meal when I am rushed. A dollop of plain yogurt and some fresh berries are all I need to add.

Because of peer support, I now understand the impact that stress and sleep have on my blood glucose numbers. Previously, I blamed my food choices and beat myself up about it even when it did not make sense. Now I know several stress management techniques and have developed a bedtime routine that helps me consistently sleep better. And I probably would not be using a continuous glucose monitor, which is the most positive thing I have ever done for my diabetes management, if I had not heard others in my peer support group talk about its benefits. Even though I lead the group, I leave each meeting feeling motivated and confident that I can continue to improve my diabetes self-management. I learn something new each time we get together.

Value of Peer Support

Having access to health care providers, accurate medical information, medications, and tools is important for understanding diabetes, but peer support is critical for successful day-to-day management of the condition.

Conclusion: A Call to Action

Diabetes is a disease managed overwhelmingly outside the walls of clinical settings, with individuals self-navigating the daily complexities of their health nearly 99% of the time.¹ Although DSMES offers a structured, evidence-based foundation for self-management during 4 critical times,¹¹ this traditional model often falls short of sustaining behavior change and motivation over the long term. Peer support, by contrast, provides an accessible, flexible, and ongoing source of encouragement, validation, and shared experience. From the earliest diabetes education manuals to present-day community-based programs, peer support has consistently demonstrated the power to improve glycemia, reduce distress, and lower health care costs, particularly when integrated thoughtfully alongside professional care.⁹

To truly reimagine DSMES for the realities of daily life, we propose a model that moves from "just-in-case" education, delivered episodically, to "just-in-time," data-informed education and support woven into daily life. Combining credentialed DSMES services with structured peer engagement leverages the strengths of both approaches: the clinical rigor and individualized goal setting of DSMES with the lived wisdom, social connection, and sustained motivation that peer communities uniquely provide. This continuous feedback loop—enabled by technology, facilitated by DCEs and enriched by community partnerships—has the potential to redefine self-management support as an accessible, empowering experience that meets people where they are whenever they need it most.

Now is the time for a call to action:

- Explore and make a list of available peer support communities and services that are accessible to the populations your clinical practice serves, such as DiabetesSisters (DiabetesSisters: Diabetes Non-Profit Organization for Women). Remember to include online services, too.
- Incorporate the ICC framework into your DSMES services to ensure a systematic approach to offering support opportunities.
- Provide information to the identified peer support communities/services regarding the DSMES and medical nutrition therapy (MNT) services your clinical practice provides, including how and when members of the community can be referred to your services.
- Create a 2-way feedback loop between your DSMES/MNT services and peer support resources to maximize access to the benefits of both services with the goal of improving the health and well-being of people with or at risk for diabetes.

Let's reimagine DSMES by systematically integrating peer support to ensure those with or at risk for diabetes are set up for success! ■

Author Contributions

JM and DS conceptualized and outlined the manuscript. JM wrote and edited the manuscript. DS and DG reviewed and edited the manuscript.

Declaration of Conflicting Interests

JM, DR, and DG serve on the DiabetesSisters Research Committee; DR is Chief Operating Officer of Diabetes Sisters; DG is an employee of Dexcom and Chair of the Board of Directors of DiabetesSisters.

Guarantor Statement

All coauthors have made a substantial contribution to the design and drafting of the manuscript and have reviewed and accepted the contents of the manuscript prior to its submission.

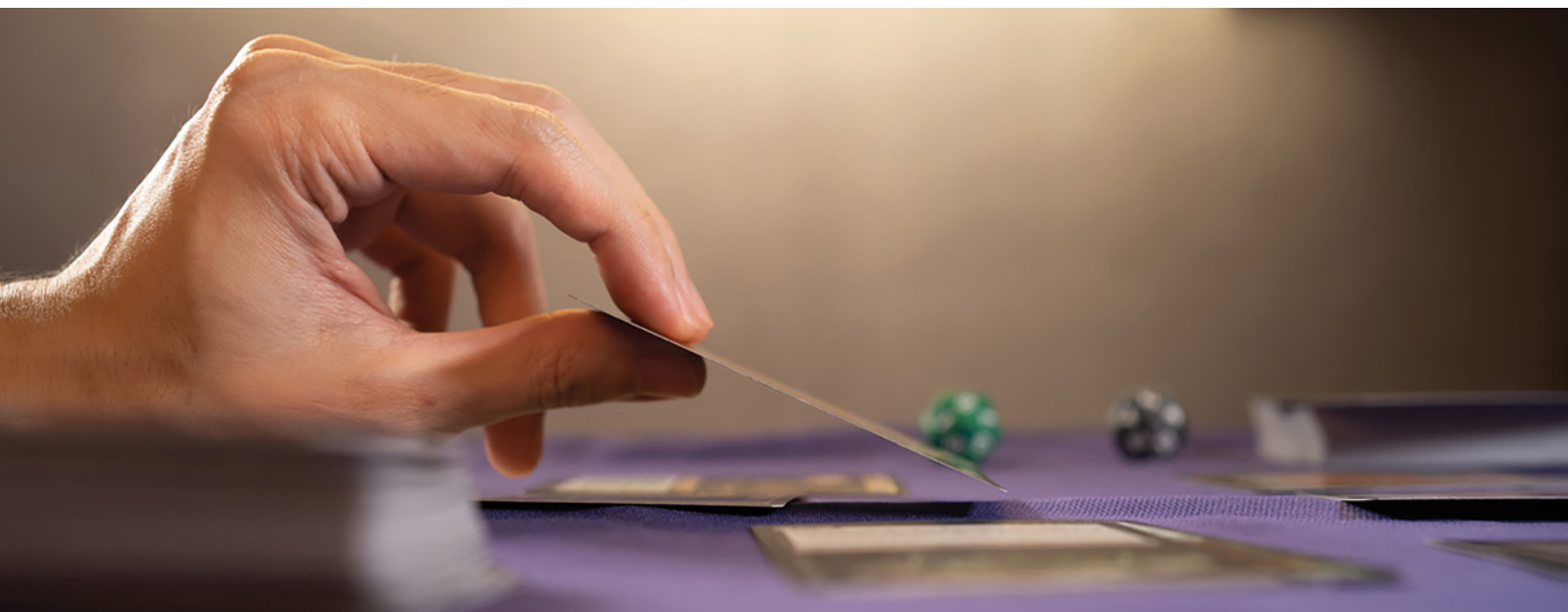
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Supporting Diabetes Education and Healthy Coping Through GAMIFICATION

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CAITLIN WOOMBS, BSC, AND DANIEL CHERNAVSKY, MD

Despite the importance of diabetes education, uptake remains low.¹ The Association of Diabetes Care and Education Specialists guidelines (ADCES7 self-care)² and National Institute for Health and Care Excellence guidelines have clear recommendations for diabetes education.³ Proven benefits include improved self-management and prevention of long-term complications; however, in 2022 in England, only 41% (n = 4595) of patients were offered structured education within 12 months of diagnosis, with a dismal 7.7% (n = 860) attendance.¹ Wide geographic differences exist in availability and access. Tharakan et al⁴ examined US data, reporting a 10% referral rate and 37% completion rate and that barriers to engagement

exist at multiple levels, that is, health system level, providers, and patients. Current technology platforms and training “fail to prioritize referrals to diabetes education, healthcare providers and people with diabetes were often unfamiliar with program content and benefits; and scheduling mechanisms and delays resulted in lost interest by patients.”⁴ Furthermore, Medicare reimbursement strategies limited expansion of education programs, generating significant wait times and limited capabilities for education specialists. Liu et al’s⁵ systematic review exploring the effectiveness of structured education found that although some studies reported improved glycemia and quality of life, others reported no such improvement in

glycemia, especially for adolescents.

Gamification in diabetes has shown mixed results. Rewolinski et al⁶ conducted a literature review and synthesis of the impact on self-management, knowledge, behavior, and engagement of game-based interventions of “serious games” and gamification for children with adolescents with type 1 diabetes. Of the 9 included studies, there were significant differences, with knowledge outcomes most significant in serious games and behavioral outcomes mostly utilized in gamification. Low-quality evidence and inconsistent use of theories in game development were present across all studies.

There is a need for innovative and engaging ways to supplement structured educational messages, particularly for adolescents and young adults. The aim of the current study was to understand the experience of participants using novel gamification incorporating the ADCES7 domains, including the lived experience of children, families, and adults with diabetes. An additional aim was to understand the views of providers working in diabetes about the educational value of the intervention.

Methods

Focus groups were held with adults and families living with type 1 or type 2 diabetes, and 1:1 interviews were held with providers across primary and specialist care services. Interview schedules and focus group questionnaires were developed by the multidisciplinary team and piloted with potential participants prior to use. Focus groups were scheduled to last 3 hours to enable participants to unpack their games, familiarize themselves with the instructions, and play. A summary of feedback from each group was created and analyzed alongside descriptive outputs of demographic and questionnaire data. Free text data were analyzed thematically by 2 experienced qualitative researchers. A coding frame was developed, and main themes were supported by specific quotes to exemplify the data. The guide incorporated acceptability,

experience of diabetes, social impact, playability, and communication. Interview data was similarly analyzed. Each researcher undertook their initial data analyses independently before regular meetings to discuss their interpretations, supported by NVivo⁷ for data coding and retrieval. The study was conducted in full conformance with the principles of the Declaration of Helsinki and adhered to the principles outlined in the Guideline for Good Clinical Practice.⁸

Results

Twenty adults (ages 23-62; 9 male) and 8 children (ages 3-16) participated in the focus groups. Gaming experience was self-reported as follows: beginner = 9, moderate = 6, and expert = 3 (n = 2 did not state). Diabetes knowledge was self-reported as low = 4, moderate = 11, and expert = 3, (n = 2 did not state). One-to-one interviews were held with 37 providers working in the diabetes field (n = 20 male; experience working in diabetes mean = 14 years, range 5-23).

Focus group participants endorsed the educational value and communication benefits of the games, particularly across a broad range



Figure 1. Example card images.

Table 1 Questionnaire Data From Focus Group Participants

Questions	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The DiaFight games pack appealed to me.	10	5	2	—	—
The DiaFight rules were easy to understand.	3	4	3	5	2
The DiaFight cards reflected the wide range of everyday issues/challenges faced in diabetes management.	10	2	1	—	—
The DiaFight game made talking about diabetes easier.	6	11	1	—	—
The DiaFight game cards prompted me to talk about a wider range of topics around living with diabetes.	5	10	3	—	—
DiaFight is a useful educational tool to cover aspects of diabetes across physical, mental, and social experiences.	10	7	1	—	—
DiaFight would be a useful tool to reduce diabetes stigma when played with folks who don't live with diabetes.	13	4	1	—	—
DiaFight prompted me to think differently about living with diabetes.	1	7	8	2	—
DiaFight would help me better cope with my diabetes or support my loved ones with their diabetes.	6	8	4	—	—
DiaFight would help me be less burdened by diabetes in social situations.	4	7	7	—	—
DiaFight would help me communicate to others the demands of diabetes and how they could be more supportive.	9	9	—	—	—
The length of time to play DiaFight was about right to maintain interest but not become "teachy."	8	5	5	1	—
Having 2 games (basic and advanced) in the games pack was useful to tailor the game to our skill level.	7	3	4	1	1
The DiaFight games pack was of a high-quality gaming experience.	9	5	4	—	—
DiaFight is a good educational tool.	15	3	—	—	—

of topics relating to physical, mental, and social well-being and diabetes. It was reported the game would be useful in reducing stigma and improving understanding in those who do not live with diabetes. There were mixed feelings about ease of understanding of the instructions, with suggestions for improvements. For further information, see Table 1.

Free text data (with participant ID in parentheses) showed the following. For "the best thing about/why I would recommend the games, responses included:

- It's an amazing and unique learning tool in a world of very dry information. . . . It was great to see the kids' love of the characters. (022)

- Good game for others to understand the ups and downs of diabetes. (019)
- Very relatable cards, fun to see everyday diabetic "problems and techniques" as cards. . . . It was fun and educational, would use to help explain diabetes to those unaware. (014)
- The graphics were amazing! It made my daughter not feel so alone. (013)
- Great way to visualise diabetes challenges. (009)

For "things I would change," responses included:

- Maybe slightly clearer setup. (018)
- Bigger cards. (022)
- Make the instructions a little clearer. (019)

For “the groups I think would find it most valuable,” responses included:

- Schools, families, teens, gamers, health care professionals. (022)
- Teens to adults. Friends and family of people with diabetes. (014)
- Schools to educate children; families that want to learn about Type 1 in the early days of diagnosis. (013)
- Schools, youth groups, support groups. (021)

For “the groups I think would find DiaFight least valuable,” responses included:

- I think a simplified version would be a fab addition for younger players. (022)
- Under 10 year olds and over 60 year olds. (002)
- Perhaps people with learning difficulties or other neuro-diverse conditions. (025)

Provider interviews ranged from 12 to 20 minutes (mean 14 minutes). Discussions covered the educational aspects, tactile gaming experience, and perceived impact. It was widely reported that the content of the game across characters accurately reflected the physical, mental, and social aspects of living with diabetes. Furthermore, participants reported that the gaming experience made some of the more complex issues in diabetes easier to understand and talk about with families and other caregivers, such as teachers. Interview data also showed that the game was engaging, with detailed and accurate messaging; specific comments included “range of cards is great, helps discussions about diabetes beyond blood glucose”; “simple but brilliant”; and “the quality of cards and artwork is superb.” It was reported the game had potential to be a useful communication tool within and outside of clinic but also to help health care professionals better understand the impact of the psychosocial aspects of diabetes management that are sometimes “intangible” or difficult to bring up.

Discussion

Diabetes education is a crucial element of support, providing a positive impact on self-management skills, physical health, and quality of life outcomes for many. The literature is mixed in terms of benefit for adolescents, and there is a need for supplementary educational materials that are acceptable and relatable, particularly for this cohort. The intervention was assessed against the ADCES7 guidelines and showed each card mapped to at least 1 of the domains of self-care. Playability of each card had a demonstrated mechanism of action. The immersive experience with engaging characters, which reflected both support and challenges experienced across diabetes, was perceived as helpful for communication within families and friendship groups to improve understanding of the lived experience of diabetes beyond glycemia and insulin/therapies.

The strengths of the current study were the collection of perspectives from both people living with diabetes and the providers. The focus group settings provided relaxed environments where participants could engage freely. Although efforts were made to engage participants from a range of backgrounds, recruitment was mostly conducted online and as such, excluded those without access. Future research should include a randomized controlled trial to assess impact on quality of life, educational outcomes, and glycemia. ■

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Author Contributions

KB wrote the study protocol and supported data analyses and interpretation. RCK, EB, and CW completed the focus groups and interviews. DC wrote the manuscript and reviewed data analyses. All authors reviewed/edited the manuscript.

Declaration of Conflicting Interests

Ryan Kelly is founder of WellFight nonprofit, and Katharine Barnard and Caitlin Woomb's are directors of the nonprofit.

Guarantor Statement

Katharine Barnard is responsible for the content.

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The Business of Virtual DSME and MNT Implementation

SARAH RUIZ , PHD, RD, LD, CDCES, DAVID PEREZ , MS, DENISE N. CHACON-PORTILLO, MPH, MCHES, AND KAREN DEL RIO , MA

The COVID-19 pandemic disrupted traditional health care delivery, posing significant challenges for individuals managing chronic conditions such as diabetes. Before the pandemic, diabetes self-management education (DSME) and medical nutrition therapy (MNT) were mainly conducted through in-person consultations, providing individualized support to help patients develop problem-solving skills, navigate diabetes-related technologies, and integrate self-care behaviors into daily life.¹ However, during the COVID-19 pandemic, disruptions to in-person care led to higher rates of delayed or missed medical visits among individuals with diabetes, exacerbating barriers to disease management, increasing stress, and heightening the risk of mental health challenges.²

Given these challenges, private practices needed to pivot quickly to a virtual model to sustain operations and ensure continued patient engagement. Many patients lacked the technological literacy to access telehealth services, and health care providers had to develop strategies to bridge this gap rapidly. Furthermore,

rural and underserved populations faced ongoing barriers, including hospital closures, workforce shortages, and limited broadband access, all exacerbated by existing economic challenges and disparities in health care access.³

To address these issues, registered dietitians (RDs), health educators, and certified diabetes care and education specialists (CDCESs) in private practice worked together to implement virtual diabetes education programs. By integrating telehealth technologies, such as mobile apps, web-based education, and video consultations, private practices can enhance patient access to diabetes self-management education, improving clinical outcomes and potential avenues for business growth.⁴ The transition to virtual DSME and MNT introduced various challenges and opportunities, highlighting key barriers, practical strategies for successful implementation, and the financial and operational impact on private practice models. This article focuses on the business operations of a private practice that delivers both DSME and MNT services. Although the setting is independent, the challenges and

strategies discussed apply to DSME/MNT programs operating across various care models.

Barriers to Virtual DSME and MNT in Private Practice

Technological Access and Literacy

As health care quickly shifted to a virtual format, how clients would adjust to receiving care was unknown. A typical 1- to 2-hour appointment had to face new considerations. A provider could not predict if a client could access a link to a virtual appointment. Although multiple platforms were available, not all clients could navigate them, and this increased the number of missed appointments, leading to frustration for patients and business operations. Although telemedicine reduced overall missed appointments, disparities remained, with minority populations still experiencing higher no-show rates.⁵ Declining patient participation had direct financial implications for private practices, affecting revenue streams and sustainability. This experience mirrors what many DSME and MNT programs faced as they struggled to keep patients engaged while adapting to unfamiliar technology.

Many patients required significant support to access and feel comfortable with virtual sessions. "We implemented presession technical support, instructional videos, and one-on-one troubleshooting calls," explained an RD and CDCES. "Over time, this helped patients feel more comfortable, improving engagement and continuity of care." They emphasized that even clinically advanced services had to be reimaged. "One of the biggest challenges was conducting insulin pump therapy training virtually," they noted. "Without the ability to provide hands-on guidance, I had to develop highly detailed visual aids, live demonstrations, and follow-up virtual check-ins to ensure patients felt confident in using their insulin pumps safely and effectively." These efforts illustrate the patient-centered adjustments critical to reducing missed appointments and maintaining continuity of care in virtual DSME and MNT models.

Team members also had to enter unexpected

roles to keep patients engaged and connected.

"This was a time of relying on previous experiences," said a certified health education specialist. "For example, walking an older adult through fixing their satellite TV suddenly became relevant when trying to help someone log into a virtual appointment." Drawing on skills from outside traditional health care roles became essential in delivering technical support and helping clients navigate unfamiliar platforms.

Delayed Diabetes Management and Revenue Impact

Many individuals postponed health care services during the COVID-19 pandemic, expecting to resume in-person visits later. This disruption delayed routine lab work, including A1C testing, directly impacting participation in DSME programs. A decline in health care utilization was particularly evident among Medicare beneficiaries with diabetes, where overall medical expenditures dropped, reflecting reduced access to non-COVID-related care.⁶ Because reimbursement for DSME and MNT services is often tied to patient engagement and lab-based metrics, these delays not only hindered diabetes management but also resulted in fewer billing opportunities for private practices. The business needed to strategize ways to engage patients while ensuring compliance with insurance requirements.

In many cases, securing reimbursement for virtual care became one of the most time-consuming but critical components of financial sustainability. "A key step was working with insurance companies to secure telehealth coverage, which took time and persistence," noted a private practice manager. "Once Medicare allowed us to use our billing codes for virtual care, private insurers gradually followed. However, we still had to make numerous calls to clarify what each insurance company allowed." Alongside adapting billing workflows, practices also had to demonstrate clinical value. "We provided data on patient outcomes, clarified billing codes, and eventually obtained the necessary approvals," they added. The practice manager also described

how partnerships with rural hospitals became a strategic way to expand reach and improve care access without the burden of additional overhead (Figure 1).

Geographic and Socioeconomic Barriers

Private practices, particularly those in rural areas, faced significant challenges with telehealth infrastructure. Limited broadband access made it difficult for individuals to join virtual sessions, and socioeconomic disparities further restricted access for those without essential technological resources, such as computers or smartphones. A study utilizing Healthy People 2020 benchmarks found that broadband access remained below national targets in rural areas, with the lowest rates observed in isolated communities, particularly those with higher poverty levels and lower educational attainment.⁷

The 2023 American Community Survey reported that in Texas, approximately 1.1 million households (9.9%) lack an internet subscription, and another 1.38 million (12.8%) rely solely on cellular data plans without broadband or other fixed internet.⁸ This digital divide remains a substantial obstacle for virtual care delivery, especially in rural counties where broadband infrastructure is limited and affordability is a concern.

Given that DSME and MNT services rely on patient volume and continuity, these barriers increased no-show rates. They disrupted reimbursement-based service models, forcing private practices to implement creative solutions to maintain engagement and minimize financial loss.

Furthermore, provider shortages compounded these difficulties. Many rural areas already faced a shortage of CDCES professionals and RDs, limiting access to DSME and MNT services even before the pandemic. Rural areas account for 66.57% of all primary medical Health Professional Shortage Area designations, with over 25.6 million people living in regions lacking sufficient health care providers.⁹ The availability of RDs in Texas reflects this disparity. Nonmetropolitan areas have a significantly higher population-to-dietitian ratio (11,142:1) compared to metropolitan areas (4,751:1), and 98 counties have no dietitians.¹⁰ The limited availability of diabetes specialists in these regions exacerbated barriers to care, making it even more challenging for individuals to access the support necessary for effective diabetes management (Figure 2).

Beyond access challenges, the shortage of RDs has direct financial implications for program sustainability. Unlike diabetes self-management training (DSMT,) which can only be billed under a recognized program, MNT is billed directly by RDs as individual rendering providers. MNT offers greater billing flexibility and often reimburses more than DSMT services. For private practices and DSME programs, having credentialed RDs on the team is essential to maintaining revenue flow

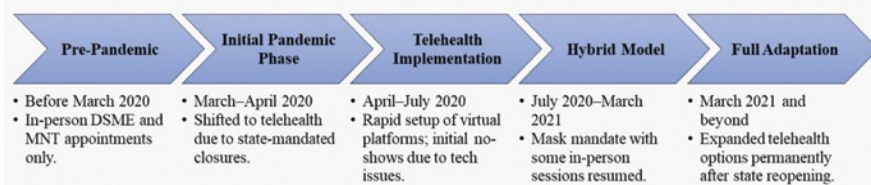


Figure 1. Progression of diabetes self-management education (DSME) and medical nutrition therapy (MNT) virtualization

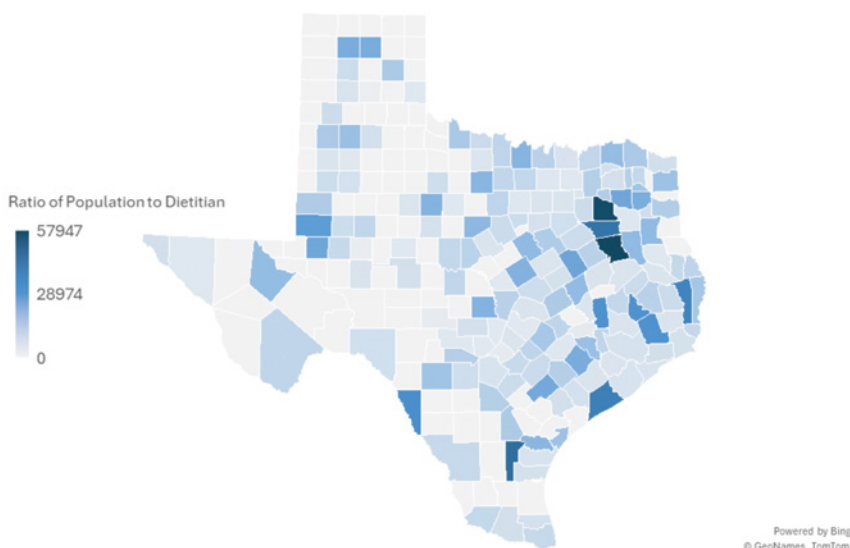


Figure 2. Ratio of Texas population to dietitian by county, 2024 data.¹¹

and fully utilizing available billing codes.

Like many communities across the United States, cities throughout Texas are often spread far apart, making access to health care services—especially specialty care—challenging for rural residents. The COVID-19 pandemic only deepened these disparities, further straining a limited workforce. In many cases, the absence of dedicated telehealth support meant staff had to adapt quickly using existing skills. A master's certified health education specialist noted that prior nonclinical experience—such as providing tech support in unrelated roles—became unexpectedly helpful. These transferable skills helped staff guide patients through basic troubleshooting, enabling virtual education to continue despite lacking formal technical infrastructure.

As health care professionals relocated or cut back on in-person visits, rural hospitals and clinics struggled to maintain services, particularly those that relied on traveling diabetes educators or dietitians. Many of these facilities were already operating on thin margins, and the financial pressures from the pandemic pushed nearly twice as many Texas hospitals to the brink of closure.¹² With fewer providers available and long-standing workforce shortages worsening, patients in rural areas were left with fewer options for managing their diabetes and were often forced to delay or forgo necessary care.

To navigate these challenges, private practices turned to partnerships with rural health care facilities and telehealth solutions to extend DSME and MNT services. Although these efforts improved access, integrating telemedicine revealed additional barriers. Privacy concerns, security risks, and frequent technical disruptions created challenges for patients and providers, with many struggling to navigate unfamiliar digital platforms.¹³ The need for secure, reliable systems became apparent because even minor disruptions impacted attendance and engagement. Despite these obstacles, telehealth remains a critical tool in rural diabetes care provided ongoing barriers are addressed for long-term success.

Sustaining the Business of Virtual DSME and MNT: Where Do We Go From Here?

Now that practices have moved beyond the initial pivot to virtual care, sustaining these models long-term requires more than day-to-day operational fixes—it demands broader strategic planning. First, private practices must continue to advocate for permanent insurance reimbursement for telehealth-based DSME and MNT. Although temporary flexibilities allowed programs to function during the pandemic, the uncertainty surrounding Medicare's long-term telehealth policies poses a significant risk. To date, these expansions have only been extended through short-term continuing resolutions, leaving programs unable to plan confidently for long-term growth. Without permanent legislation, private practices and DSME programs face persistent ambiguity around billing eligibility and infrastructure investment, undermining scalability even when virtual care models have proven successful.

Second, hybrid service models should be refined, not abandoned. Virtual care may not work for every patient or service, but strategically integrating telehealth with in-person care offers flexibility, optimizes staffing, and allows practices to reach broader geographic regions without the burden of satellite offices. Hybrid models also support patient preference and engagement—key drivers in maintaining volume and retention.

Third, investment in digital health training and support systems is critical. Both providers and patients benefit from tools that streamline onboarding, troubleshooting, and communication. Reimbursement structures should account for the time and resources needed to support patients new to telehealth platforms. As staff adapt, ongoing professional development in virtual care delivery will remain essential to maintaining service quality and operational efficiency.

These priorities are not optional but central to sustaining and growing virtual DSME and MNT as a viable business model.

Conclusion

Many patients who were initially hesitant adapted well to the virtual format over time. “I believe virtual diabetes education will continue to thrive because of its convenience,” said a certified diabetes prevention program lifestyle coach. “Patients can access these sessions from anywhere, and with the increasing accessibility of smartphones and internet services, virtual care is becoming more viable than ever.”

Virtual DSME and MNT provide a scalable, cost-effective model for private practices. Although barriers such as technology access, patient hesitancy, and insurance complexities required adaptation, virtual services ultimately enhanced patient access, improved retention, and strengthened financial sustainability. Private practices must advocate for continued insurance reimbursement, refine hybrid service models, and invest in digital health training. These strategies will ensure long-term success in telehealth-driven diabetes care (Figure 3).

By embracing these strategies, private practices can sustain long-term success in virtual DSME and MNT while continuing to provide high-quality diabetes education to diverse populations. ■

Author Contributions

Sarah Ruiz, PhD, RD, LD, CDCES, conducted the literature review and provided the background for the article. Wrote the section for geographic and socioeconomic barriers and assisted in the development of Figures 1 through 3. Cowrote sections (delayed diabetes management and sustaining the business of virtual DSME and MNT). Reviewed and revised the article in each section.

David Perez, MS, codeveloped the 3 figures. Wrote the section related to revenue impact and cowrote the section sustaining the business of virtual DSME and MNT and conclusion. Assisted in final review and revisions of the article. Identified articles to be considered for the literature review.

Denise Chacon-Portillo, MPH, MCHES, cowrote the section for technological access and literacy. Wrote a paragraph in the section geographic and socioeconomic barriers. Reviewed the section on delayed diabetes management for content accuracy. Reviewed the references relevant to barriers related to access to diabetes care.

Karen Del Rio, MA, cowrote the section for technological access and literacy. Wrote a section of the conclusion. Reviewed the references relevant to telehealth/telemedicine and diabetes management for relevance and accuracy.

Guarantor Statement

Sarah Ruiz serves as the guarantor for this work and accepts full responsibility for the content. She affirms that the manuscript is an accurate, honest, and transparent account of the topic discussed and that no important aspects have been omitted.

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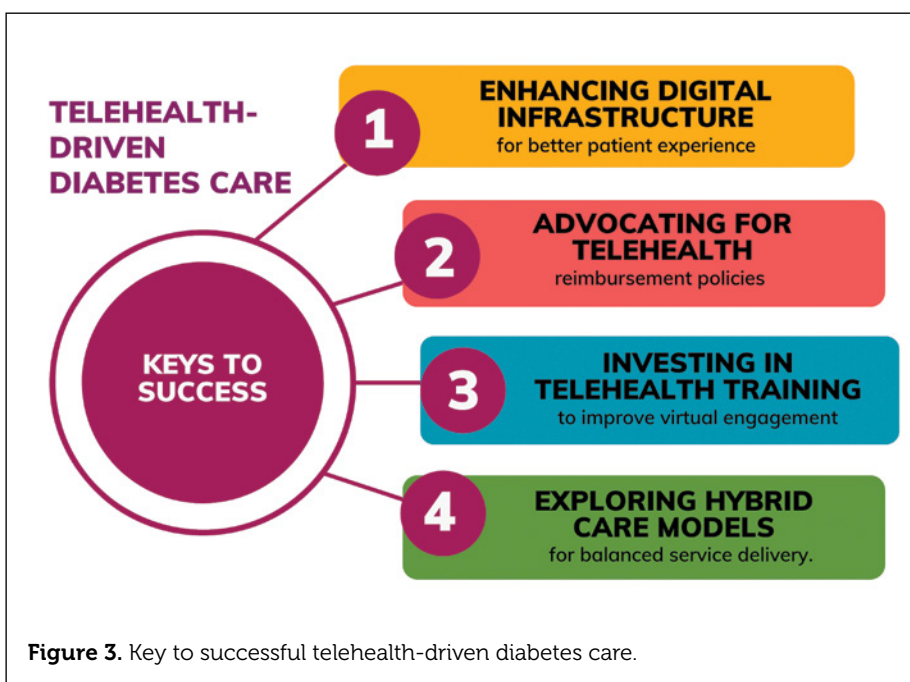


Figure 3. Key to successful telehealth-driven diabetes care.

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The Evolution of Nurse-Led Basic Inpatient Survival Skills Education at an Academic Medical Institution

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According to the Centers for Disease Control and Prevention (CDC), 38.1 million adults have diabetes, and in 2020, 7.86 million hospital discharges were reported with diabetes listed as a diagnosis.¹ The American Diabetes Association (ADA) 2025 Standards of Care in Diabetes recommends diabetes self-management education and support (DSMES), citing such

potential benefits as improved diabetes knowledge and self-care behaviors, lower A1C, lower self-reported weight, improved quality of life, reduced all-cause mortality risk, positive coping behaviors, and lower health care costs.² Despite these benefits, fewer than 7% of patients with private insurance received DSMES, and only 1.7% of Medicare beneficiaries with diabetes had

a Medicare claim for DSMES in 2012.³ This high number of patients and hospitalization days provides an opportunity to offer education to patients who may display readiness to learn and willingness to implement change at a critical time (e.g., following hospitalization for a cardiac event or stroke).

At our organization historically, the frontline registered nurses (RNs) were the primary owners of the process of providing basic survival skills training for inpatients with diabetes, such as glucose monitoring, insulin injection technique, and problem-solving (e.g., treating hypoglycemia). While the RNs provided basic survival skills education, the certified diabetes care and education specialist (CDCES) was primarily focused on seeing patients with more complex needs. The CDCES owned the process of stocking every hospital unit with preprinted packets that contained handouts on relevant topics, such as hypoglycemia management, insulin injection technique, and sliding scale dosing charts for RNs to use in providing education. The CDCES also taught the nursing staff how to teach basic diabetes survival skills to the patients during their hospital stay.

This RN-led model of basic survival skills education changed following the departure of the CDCES and the organization's transition from paper-based health records to an electronic health record (EHR). With the changes from paper records to EHR, there were no longer preprinted packets for RNs to use in providing education. Instead, RNs distributed individual handouts on varied topics related to diabetes management from the EHR. This allowed for a more individualized approach to selecting handouts appropriate to the patient's specific situation; however, early adoption was also characterized by challenges for some RNs regarding which handouts to give patients.

The responsibility for basic survival skills education shifted from frontline RNs to the CDCES over time, primarily driven by staff turnover and other changes. Eventually, the CDCES became responsible for all inpatient diabetes education

needs,⁴ including but not limited to:

1. Simple requests for nutrition counseling and complex requests such as carbohydrate-counting and carbohydrate-based dosing,
2. Basal/bolus insulin dosing,
3. Insulin with enteral or parenteral nutrition.

Some limitations and consequences of utilizing the CDCES as the sole provider of inpatient diabetes education include the following:

- **CDCES availability:** The CDCES was not available to provide diabetes education to patients during holidays, after business hours, and on weekends. Inpatient diabetes education needs are present even outside of the CDCES's office hours. Also, the CDCES was responsible for providing diabetes education at 3 different geographic sites and was occasionally not able to see all patients in time for discharge.
- **Patient flow and throughput:** On some occasions, patients were held over the weekend or spent an extra night admitted in the hospital waiting to be seen by the CDCES when they could have potentially been discharged earlier had they received the basic survival skills education required for a safe and timely discharge.
- **Lack of frontline RN knowledge:** RNs have struggled with implementing basic survival skills education because many RNs:
 - Were not aware that they could place ancillary consults, such as for a dietitian;
 - Were unaware of what handouts and tools (such as educational videos) were available in the EHR;
 - Did not know what topics to review with the patient when asked to provide diabetes education for discharge;
 - Were teaching patients how to use the hospital glucose monitoring kit, which was not similar to what the patient would be discharged home with, thereby creating confusion for the patient when they arrived home.

Initiate Discharge Teaching - Diabetes (Adult)

✓ Accept

✓ If patient has MyChart or Oneview, ask them to watch assigned Mytonomy videos during their inpatient stay

Routine, Once, today at 1434, For 1 occurrence

✓ Perform Insulin teaching (See comments)

Routine, Once, today at 1434, For 1 occurrence

1. Initiate insulin pen teaching as soon as possible with patient and or caregiver. Use demonstration pen and injection pad for initial patient hands-on teach-back. 2. Patient and or caregiver, after being taught, should perform insulin preparation and dose injection with RN supervision with every dose until independent. 3. If insulin vial/syringe ordered for discharge, initiate insulin teaching using vial and syringe.

✓ Inpatient Consult to Nutrition Services

Reason for Consult: Diet Education (Specify Topic)

✓ Inpatient Consult to Diabetes Educator

Reason for Consult? New insulin for discharge

Is patient amenable to using insulin at discharge? Yes

Is patient the primary learner or is caregiver training required? Primary learner

✓ blood glucose monitoring kit

Other, Once, 1 dose, today at 1500

This meter is to facilitate inpatient glucometer teaching. On discharge patient will need a new glucose monitoring kit and additional test supplies ordered through their outpatient pharmacy.

✓ blood glucose test strip 1 each

1 each, Other, Once, 1 dose, today at 1500

✓ Prepare diabetes discharge reference material (see comments)

Routine, Once, today at 1434, For 1 occurrence

In the discharge navigator, under "patient instructions" attach, print out and give to the patient the following handouts (that are relevant to patient): 1. Insulin Pen how to use (if new insulin pen planned for discharge) 2. Use of Insulin pen (if new insulin pen planned for discharge) 3. Diabetes discharge information (all patients with diabetes) 4. Diabetes: Type 1 General Info or Diabetes: Type 2 General Info (if newly diagnosed with either T1DM or T2DM, depending on type at diagnosis) 5. Steroid induced diabetes mellitus General Info (if steroid induced hyperglycemia) 6. Carbohydrates UCSF (if newly diagnosed with diabetes or nutrition barriers)

✓ Review Diabetes discharge informational handout with patient regarding signs and symptoms of hypoglycemia and hyperglycemia with appropriate interventions

Routine, Once, today at 1434, For 1 occurrence

Figure 1. Diabetes education order panel.

After identifying the aforementioned gaps, the new CDCES, in collaboration with other team members (including RN diabetes champions, nursing informatics colleagues, and others), implemented a Diabetes Discharge Order Panel (DDOP) for inpatient RN-led basic diabetes survival

skills education as a formal order in the EHR. This panel consisted of a bundle of orders placed by the provider for the RN, which offered guidance on what specific topics to cover (i.e., insulin teaching, hypoglycemia teaching) and what handouts were available in the EHR. In addition, the DDOP referenced the available patient education videos that could be utilized. The goal of the DDOP was to provide a standardized process for nursing staff to initiate the process of basic diabetes survival skills education with their patients even before the CDCES's arrival for formal and more in-depth education (see Figure 1).

Six months after implementation, the DDOP was used 107 times to order RN-based survival skills education and 171 times after 12 months (Figure 2).

Some observed benefits of using this new model for RN-led survival skills included the following:

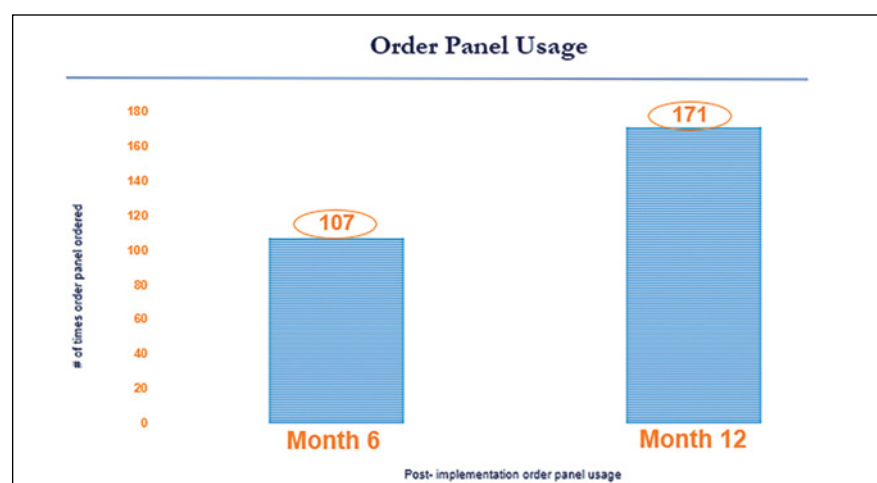


Figure 2. Diabetes education order panel usage.

- **Early patient engagement with diabetes education:** Patients participated in hands-on insulin pen injection and glucose monitoring techniques earlier on in their hospital stay, leading to more patient engagement and confidence in performing these new skills before discharge.
- **RN engagement:** RNs were observed to be more engaged with the process of providing patient education when there was a formal order in the EHR.
- **Provider engagement:** Medical providers were observed to be more likely to place an order for RN education when a formal order was available in the EHR (compared with when they had to manually type in a miscellaneous order).
- **Patient flow:** When education was provided earlier on in their hospital stay, there was less likelihood of the patient requiring additional time in the hospital for diabetes education.

Obstacles noted during the implementation of this new workflow related primarily to RN knowledge around DSMES. Many nurses were not familiar with the home glucose monitoring kit; thus, when the kits were sent up to the patient from the pharmacy, some RNs did not know how to use them or how to educate the patient. Many nurses were not familiar with the patient education videos available in the EHR or how to find the handouts that were referenced in the order panel. These barriers were addressed by increased RN educational offerings in the form of e-learning, in-person classes, and targeted RN rounding led by the CDCES.

Conclusion and Next Steps

Although culture and process change are difficult to adopt, this project demonstrated that RN-led diabetes education interventions are feasible and may have quantifiable advantages. Since the DDOP was created, it has been used

to start patient education earlier on during the hospital stay and independent of the CDCES's involvement. It has also created a desired shift in engagement of frontline RNs in owning some aspects of the process for diabetes education delivery at our organization. The DDOP has led to a more collaborative approach among the CDCES team, providers, and frontline RNs. Nurse-driven education supports the recommendation from the ADA for providing DSMES to patients before discharge from the hospital according to the 2025 Standards of Care.²

Next steps for this project are to increase awareness and uptake of technology use (patient educational videos) within the EHR to help better facilitate the process of RN-led basic diabetes survival skills education. ■

Author Contributions

Esther Rov-Ikpah wrote the manuscript and researched the data. Meghan Talbert reviewed and edited the manuscript.

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The Journey to Successful Reimbursement in a Federally Qualified Health Center

Reimbursement for diabetes self-management training (DSMT), which is the Medicare benefit for diabetes self-management education and support (DSMES), can be a challenge in recognized and accredited programs, particularly in a Federally Qualified Health Center (FQHC) setting. Medicare only reimburses one-on-one DSMES (G0108) in this setting, and these visits cannot be billed on the same day as a medical visit. FQHCs also utilize additional G codes for each visit that specify if the participant is a new (G0466) or an established patient (G0467).

Amy Carter, MA, RDN, LD, CDCES, is the Diabetes Education Accreditation Program quality coordinator for Eskenazi Health Center (EHC)

Diabetes Education Program. The program serves close to 250 adults each year in Indianapolis, Indiana, primarily individuals with type 2 diabetes. The participant population includes 63% Black/African American individuals, 24% Hispanic, and 12% White.

The DSMES team is composed of pharmacists, registered dietitian nutritionists, and certified diabetes care and education specialists. At present, the program does not have any FTEs specifically dedicated to only DSMES. The team also provides a variety of other services, including medical nutrition therapy, lifestyle medicine services, and clinical pharmacy services.

Amy and her team have successfully been reimbursed for their one-on-one DSMT services. She shares her experience, insights, and advice.

Why Was Billing and Reimbursement a Challenge for Your FQHC?

The EHC Diabetes Education Program became accredited in 2014, and for the majority of that time, it operated primarily as a group-based DSMES model. That worked well for patient engagement and outcomes, but it didn't align well with billing rules for FQHCs since Medicare only reimburses one-on-one DSMES in this setting. Providers who engaged with patients alongside our groups were billing for their own clinical visits, but DSMES itself wasn't being billed individually—and that meant we were missing opportunities for reimbursement.

With the increasing costs in health care and funding shifting away from our organization, making the program sustainable became an increasing need. We decided to begin the journey to successful reimbursement of DSMES services in 2024.

Who Were the Key Stakeholders Involved in the Process?

The initiative required collaboration from several teams:

- **Leadership:** the chief operating officer for EHC was instrumental in working through the opportunities for reimbursement and beginning collaborative meetings with

compliance, billing, and IT to ensure a comprehensive approach.

- **Compliance:** The system compliance team reviewed the options for reimbursement to ensure compliance with state and federal regulations for reimbursement in the FQHC setting. This entailed several meetings with all teams listed.
- **Billing:** The professional billing team worked to credential providers with the applicable payers and review documentation and referrals in the electronic health record (EHR) to ensure it met their needs.
- **IT:** Built the individual DSMES documentation, referral orders, and reporting that would be automatically generated as needed based off data entered.

What Did the Process Look Like?

It took us time to fully understand how DSMES billing fits within the unique FQHC framework and what changes we needed to make to align everything. I initially asked the chief operating officer for permission to pursue the revenue opportunities. Then, over several months, the nutrition leadership team and I met with stakeholders across compliance, billing, IT, and leadership.

The longest piece was making sure the EHR was built correctly to get the right structure in place, the right codes available, and the workflow clear for our teams. Due to other system and resource constraints, this delayed progress around 6 months.

The program then worked to enroll DSMES team members as providers where applicable with payers and completed staff training, followed by practice and chart audits to make sure everyone felt confident and remained compliant. Ultimately, from start to finish, it took almost a year to receive necessary approvals, build, train staff, and implement. It wasn't quick, but each step built momentum.

What Were Some Key Learnings Along the Way?

One of the biggest surprises was how much confusion existed around what could and could not be reimbursed by each payer. Many internal partners had understandable hesitation, and it took time to work through a lot of

misconceptions. Additionally, EHR builds almost always take longer than expected, especially when the goal is to make documentation simple, consistent, and compliant. Partnering closely with compliance and billing ensured the rules were followed but slowed progress considerably.

Knowing What You Know Now, How Would You Have Changed Your Process From the Start?

Beginning the EHR build much earlier and engaging the compliance team into the process from day 1. Their insights were essential, and having them engaged sooner would likely have facilitated a more streamlined process.

Creating a practical training approach for staff that included decision trees, charts, and real-life examples to help clarify when DSMES should be billed and when medical nutrition therapy (MNT) is more appropriate. Those nuances matter when the registered dietitians on the DSMES team previously only billed for MNT for people with diabetes.

What Advice Do You Have for FQHCs That Are Struggling to Get Reimbursed?

Use every resource you can get your hands on. The ADCES reimbursement team was incredibly helpful for us, and having outside experts to guide the process saved a lot of time and rework. Throughout our journey, ADCES supported the program with development of materials to understand sometimes complicated billing structures and needs.

Also, don't underestimate the value of strong relationships with your compliance, billing, and IT teams. They're essential partners in creating workflows that actually work in the real world.

Are There Any Learnings That Can Be Applied to All Site Settings, Not Just FQHCs?

No matter the setting, having a clear, thoughtfully designed EHR workflow is important. This ensures staff can easily document and track all needs. Credentialing and billing compliance are universal needs, too.

And across the board, investing in staff education—especially around the differences between MNT and DSMES—helps prevent confusion and supports consistent, compliant billing. ■



LAURIEANN SCHER , MS, RD, CDCES, FADCES, AND DANA MOREAU, MS

Choosing an AID System

A Practical, Person-Centered Approach

Automated insulin delivery (AID) systems are transforming diabetes care and are now recommended as the preferred insulin delivery method in people with type 1 diabetes, adults with type 2 diabetes, children and adolescents with type 2 diabetes, and those with other forms of insulin-deficient diabetes. Consistent with the 2026 ADA Standards of Care,¹ selecting an AID system should be individualized based on the person's needs, preferences, and circumstances.

"Will This Work for Me in My Everyday Life?"

For clinicians, this shifts the conversation from selecting the most advanced technology to identifying the system that best fits how a person wants to live and will realistically use.

Start With What Matters Most to the Individual

Across clinical experience and expert input, the most important factors are often practical—not technical:

- How the device is worn
- Whether it has tubing or is tubeless
- If it can be removed temporarily
- What is the size and visibility of the device
- Is it compatible with their current continuous glucose monitor
- Is a smartphone a requirement for use

In fact, many individuals and families make decisions based on physical design (e.g., choosing tubeless simply because it is tubeless or something that looks cool or a certain way), with less focus on algorithm differences.

Clinical Takeaway

Start with lifestyle and lived experience to guide technology selection—and then layer in clinical and technical considerations.

Keep It Simple: A 3-Question Framework

When helping someone choose an AID system, start with:

1. "How do you want to wear it?" (tubed, tubeless, removable, visible vs discreet)
2. "How do you want to interact with it?" (phone-based, pump-based, more hands-on vs less and more automated)
3. "What would make this easy—or frustrating—in your daily life?"

This approach quickly narrows options and centers the decision on the person—not the product.

Focus on “Fit,” Not “Features”

Instead of asking, “Which system is best?,” shift to: “Which system fits how you want to live your daily life?”

Bottom Line

The goal is to translate needs and preferences into decisions. Once preferences are clear, practical system specific considerations become clearer:

- Preference for no tubing → tubeless systems
- Higher daily insulin needs → larger reservoir capacity and/or increased change frequency
- Desire to avoid smartphone dependence → systems with on-device control
- Preference for minimal interaction → systems with greater automation

This practice helps move from general discussion to practical decision-making. Because as we know, the best AID system for an individual is the one a person will consistently wear, trust, and use.

Visit danatech for More Information About AID Systems

- [Automated Insulin Delivery, A Quick Overview](#)
- [Find and Compare Insulin Delivery Devices](#)
- [AID Panther Tools](#)
- [Online Device Training](#)
- [Open Source DIY Systems](#)

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Author Contributions

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Declaration of Conflicting Interests

LaurieAnn Scher is a consultant who works for ADCES, danatech. Dana Moreau is an employee of ADCES, danatech.

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A helpful way to guide this is by focusing on a few key domains:	
1. Daily wear and comfort	• Tubed vs tubeless • Ability to disconnect (for sports, intimacy, etc) • Device size and body placement options These are often <i>the</i> deciding factors for many people.
2. Insulin needs and practical use	• Insulin reservoir capacity • Frequency of pod/cartridge changes • Willingness to manage refills and site changes For example, it is important to match the daily dose to the reservoir capacity for individuals who do not want frequent changes because some systems may not be a good fit based on daily insulin needs.
3. Technology preferences	• Phone required vs optional • Compatible devices (iOS/Android limitations) Preferred continuous glucose monitor integration For some, needing a specific phone—or carrying one at all—can be a dealbreaker.
4. Level of automation and engagement	• Does the person want more automation or more control? • Are they comfortable with fewer inputs or more (meal announcements or carbohydrate input or no input) • Do they want to be in the driver’s seat? And if they opt for less control, will they be a backseat passenger constantly adjusting the mirrors?
5. Algorithm behavior	Algorithm differences across automated insulin delivery systems can meaningfully affect outcomes and user experience and may play a factor in device selection (for some individuals). • Individuals seeking tighter glucose targets or more aggressive correction benefit from system-specific algorithm behavior that is highly responsive and modifiable to user needs. • Individuals who feel overwhelmed by diabetes management may prioritize simplicity and automation over the ability to customize. In practice, algorithm considerations are most useful when they align with the individual’s goals and capacity for engagement.



40 Years of Standard Setting



The Evolution of the Certification Board for Diabetes Care and Education (CBDCE)

CBDCE turns 40 this year. It is the kind of anniversary that invites reflection not just on how much has changed but also on how much has stayed the same. The credential looks different than it did in 1986. The organization is larger, more independent, and more complex. But the reason it exists has never shifted: People with diabetes deserve care from professionals who can demonstrate real expertise, and we were established to set and protect that standard.

In 1986, diabetes self-management education was being delivered by nurses, dietitians,

pharmacists, and others, but there was no shared way to know who had the specific expertise the role required. Patients and employers had no way to identify or recognize diabetes specialists, and dedicated clinicians had no clear benchmark to hold themselves to. A group of leaders in the field decided these experts needed to be recognized, and they formed the National Certification Board for Diabetes Educators. In October of that year, nearly 1250 clinicians sat for the first examination, among them Anne Daly, MS, RDN, BC-ADM, CDCES, a dietitian from Springfield, Illinois, who

is still in practice today. For Anne, that moment was more than a milestone. "Being one of the educators to sit for and pass the first diabetes education certification exam in 1986 was an honor and career-changing event," she recalls. "Certification introduced a whole new level of recognition for diabetes education as a respected art and science." From the start, the certification program was built to stay independent from membership organizations, a deliberate choice that kept the credentialing process objective. That has not changed.

What has changed is almost everything else. In 1995, NCBDE formally separated its administrative operations from AADE, where they had been initially housed. The years that followed brought constant evolution in diabetes care itself. New drug classes, new technology, new research on behavior change and psychology, all of it expanded what was expected of practitioners in the field.

Regular practice analysis kept the credential current, revisiting what it should measure and updating accordingly. In 2020, that process led to one of the most visible changes in the organization's history: the CDE became the CDCES, the certified diabetes care and education specialist. The new name reflected what certificants were doing: navigating complex clinical situations, coordinating across disciplines, and supporting patients through long-term behavior change.

Some of the most meaningful work is less visible but no less important. In 2009, the move to computer-based testing meant candidates could schedule their exam when and where it made sense for them, not around a fixed window twice a year.

In 2016, CBDCE received NCCA accreditation for the first time, an external confirmation that its processes met the field's highest standards for certification governance. That accreditation was renewed in 2021. That same year brought the launch of a [scholarship](#) program supporting underserved communities, veterans, and young

professionals early in their careers. A credential is only as strong as the community that holds it.

In 2024, CBDCE launched the [Ambassador Program](#). The idea was straightforward: Certificants are the best advocates for this work, and empowering them to do that advocacy makes everyone stronger. Ambassadors bring the story of the [CDCES](#) into conversations that formal communications cannot always reach, representing the credential and the profession in their own institutions, networks, and communities.

This year also marks the completion of a transition year in the making. CBDCE now owns the BC-ADM credential, which moved from ADCES at the start of 2025. The BC-ADM recognizes advanced clinical management in diabetes in areas such as medication management, complication oversight, and complex clinical problem-solving. Having both credentials under one roof allows CBDCE to recognize a broader spectrum of expertise in diabetes care with consistent standards across both.

The impact of CDCES-certified professionals is felt daily in communities and clinics across the country. "Being a CDCES is beyond rewarding," said Lynda McKendree, MSN/ED, RN, CDCES. "I never thought anything could surpass nursing, but earning the CDCES certification makes each day meaningful and reminds me that my work truly matters."

Even as this anniversary is being celebrated, the board is actively looking to the future. Four decades in, and important work is still ahead. The field will keep changing, the expectations of practitioners will keep rising, and the work of defining and protecting a meaningful standard will become even more critical.

Here is to the next 40 years.

For more information about becoming a [CDCES, BC-ADM](#), or need to [recertify](#), please visit our website the [CBDCE](#) website. ■



DiabetesSangha

Living with type 1 diabetes (T1D) involves far more than numbers, devices, and treatment plans. For many people, the emotional and psychological load of diabetes is constant—often invisible and frequently underaddressed. DiabetesSangha exists to meet this need.

DiabetesSangha is a nonprofit organization dedicated to supporting the emotional well-being of people living with T1D through mindfulness, meditation, and community connection. Founded and led by individuals living with T1D, the organization offers free, accessible programs designed to support healthy coping alongside medical care.

At its core, DiabetesSangha recognizes that diabetes distress is not a personal failure—it is a natural response to living with a demanding, 24/7 disease. Mindfulness offers people with T1D a way to relate more kindly and skillfully to their experience, helping reduce burnout, increase self-compassion, and build sustainable resilience over time.

Addressing a Missing Need in Diabetes Care

Although medical advances have transformed T1D management, the emotional and psychological dimensions of living with the disease have remained largely unaddressed. People with T1D

consistently report needing support beyond clinical care—support that addresses the relentless mental load, the isolation of constant vigilance, and the emotional toll of unpredictability despite careful management.

DiabetesSangha emerged in 2021 to fill this gap, creating a space where individuals with T1D could learn about and practice mindfulness designed around their experience. What began as pilot programs in compassion and mindfulness for T1D has grown into a thriving community that has now hosted over 1400 live meditation sessions—a testament to both the depth of the need and the impact.

DiabetesSangha offers:

- live, guided meditation sessions held daily on Zoom
- weekly workshops on special topics, to expose our community to other approaches to living well with T1D.
- recorded meditations and workshops available on demand through YouTube
- introductory courses in mindfulness specifically tailored for T1D
- in-person events, such as mindfulness retreats.

These are all completely free to participants.

All programs are facilitated by trained mindfulness teachers who are living with T1D. The organization offers over 300 live practices each year, ensuring accessibility regardless of schedule or time zone.

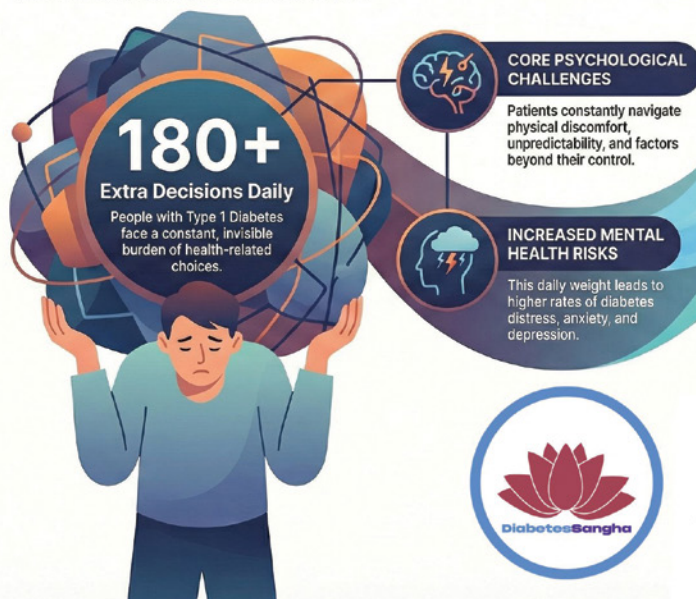
Support That Complements Clinical Care

Diabetes care and education specialists often recognize the emotional challenges their patients face but lack time, tools, or referral options to fully address them. DiabetesSangha fills this gap by

The Mindful Approach to Diabetes Care: A Guide for Educators

Managing diabetes involves constant emotional challenges beyond technical skills. Mindfulness offers an evidence-informed framework for educators to support healthy coping, building resilience and self-compassion.

THE HIDDEN WEIGHT OF DIABETES



MINDFULNESS: A TOOL FOR HEALTHY COPING

DEFINITION:

Mindfulness is the ability to experience things as they are. It's not about perfect control, but gently returning to presence again and again.



Evidence shows mindfulness improves key outcomes

Studies link it to reduced distress, better glycemic control, and improved sleep quality.



Simple practices can be easily integrated into patient care

Educators can teach grounding techniques like the "Pause" or Box Breathing in minutes.



For more information
visit www.diabetessangha.com

offering structured, evidence-based mindfulness practices in a peer-supported environment.

Participants frequently share feeling more attentive to their body and how it changes as glucose levels go up and down and how their emotional experience impacts their decision-making—allowing them to make wiser decisions on a day-to-day basis.

Why This Matters for Diabetes Care and Education Specialists

Healthy coping is a foundational self-care behavior in the ADCES7 framework, yet many people with diabetes struggle to find practical support in this area.

DiabetesSangha is an easy button for just that. It is:

- free to participants
- designed specifically for T1D
- supportive of balancing care goals with current harsh realities
- a wellspring of foundational skills necessary to build long-term healthy coping strategies
- an excellent place to find a supportive community.

Diabetes care and education specialists can recommend DiabetesSangha to individuals at any stage of their diabetes journey, whether newly diagnosed or experiencing long-term fatigue.

Building Community Across the Diabetes Ecosystem

DiabetesSangha is deeply engaged with the broader diabetes community, working to integrate mindfulness and mental health support into diverse diabetes settings. The organization serves as a wellness partner for Connected in Motion, bringing mindfulness practices to their community adventure weekends. DiabetesSangha participates in Breakthrough T1D's Type One Nations summits and collaborates with diabetes health centers, including the Kovler Diabetes Center at the University of Chicago and the Barbara Davis Diabetes Center, to expand access to contemplative practices like mindfulness. DiabetesSangha facilitators have also presented at multiple ADCES national conferences.

Learning More

DiabetesSangha welcomes collaboration with diabetes care and education specialists and regularly works alongside clinicians, educators, and organizations committed to whole-person diabetes care.

To learn more or explore available resources, visit www.diabetessangha.com or email peter@diabetessangha.com. ■



Realizing the Power of Our Impact

The Journey of Diabetes Education and Community Collaboration

MITZI LOVELL, BSN, RN, CDCES



In *ADCES in Practice*, we are focusing on sharing the stories of our award winners. What they did to deserve the honor and what we can all learn from them. Here, we focus on Mitzi Lovell, BSN, RN, CDCES, the recipient of the 2025 ADCES Power of Our Impact Award. This award recognizes a diabetes care and education specialist (DCES) for their ongoing dedication and service to persons with diabetes and the impact of diabetes self-management and clinical care that DCESs provide.

One of my most significant accomplishments during my 32 years as a DCES was helping to coordinate our community's Diabetes 101 annual meeting for 16 years, an event led by the American Diabetes Association (ADA). This achievement was not something I accomplished alone; it required the collective effort of many key educators, providers, and representatives. As the recipient of the 2025 Power of Impact Award, I am reminded that certified DCESs (CDCESs) make a difference every day by simply being themselves and consistently going above and beyond. When I accepted this award, it felt as though I was also accepting it on behalf of all my fellow educators who have not been formally recognized yet continue to positively impact the lives of others daily.

Bringing a Vision to Life

The ADA representative approached me, as the CDCES at the largest hospital in the area, with her innovative idea to develop a diabetes education program for the public and to unify our medical community to make it a reality.

At that time, the notion of collaborating with competitors to organize such an event was unfamiliar. Nonetheless, she asked me to take the lead and chair the event. Although I was a novice educator with limited administrative or leadership experience, I accepted the challenge without fully understanding what it would entail. This experience, however, became an incredible opportunity for me to develop my leadership, organizational, and salesmanship skills and to build confidence—skills I continue to rely on today, especially in my volunteer work at church, whether organizing meals for the homeless, vacation bible school, handling administrative responsibilities, or the women's ministry.

Uniting a Competitive Community

In the 1990s, uniting competing medical communities for a collaborative project was unusual. My initial task was to help convince the medical community, including CDCESs, hospital staff, the public health department, and eventually 2 private clinics with their own diabetes education programs, to participate. Additionally, we reached out to pharmaceutical representatives to secure the necessary sponsorship for the event. Our efforts focused on persuading physicians and educators to volunteer their time for educational sessions, with the goal of unifying the medical community to concentrate on public diabetes education.

Building a Supportive Network

The community's CDCESs quickly rallied to support the event, dedicated to educating patients, providers, and local businesses about diabetes to raise awareness of this complex disease. The ADA played a critical role, leveraging their prior experience to publicize the event, secure and pay for the venue, manage the contract, handle printing and distribution of programs, and process registrations and sponsorship fees. Their administrative support made the project possible, and they also provided medical volunteers on the day of the event to ensure everything ran smoothly.

Event Organization and Growth

The CDCESs took turns chairing the event, selecting topics, planning sessions, approving the program for print, inviting speakers, securing financial support from representatives and local businesses, arranging catering, and managing logistics at the venue. We organized the businesses that supported the event, coordinated their conference displays, and personally distributed event programs to local businesses. Our efforts included local radio spots, newspaper articles, and a TV interview, all of which significantly increased awareness of diabetes and the educational resources available in our area. Our early events were modest in size but eventually grew to include up to 500 participants for our all-day Saturday seminar, Diabetes 101. Patients still talk about these seminars decades later, remembering how much they learned and how much they enjoyed the experience having personal time with physicians and educators.

Highlighting Progress in Diabetes Care

One of the most impactful visuals was an antique rounded glass candy display filled with older diabetes management technology. This display helped patients appreciate how far we have come with our diabetes technology. It included a glass syringe with reusable needles that needed sharpening and boiling, large and expensive glucose meters that took over 2 minutes to provide results, and early insulin pumps that could not be disconnected from the patient—requiring users to place the pump or continuous glucose monitor in a plastic bag around their neck to shower. This display served as a powerful reminder of the advances that have greatly improved the quality of life for people with diabetes.

The End of an Era and Ongoing Impact

After 16 successful years, Diabetes 101 was discontinued when the ADA decided to redirect their support elsewhere. The educators were disappointed and wanted to continue the program, but without the ADA's administrative

infrastructure to manage registration and sponsorship funds, it became too challenging for any of the involved organizations to sustain it, especially given the demands of their full-time clinical roles.

Reflections and Lasting Influence

Having recently retired from over 25 years in clinic, I am now more aware than ever that we often do not realize the true impact we have on our patients and their families. Since retiring, I have been deeply moved by the outpouring of gratitude from patients and families, which has helped me see the influence I have had over the years. I want to remind DCEs that although we often hear criticism, we rarely hear about the positive effects of our work. We are the unsung heroes of the medical community, and it is important not to underestimate the difference you make each day in helping people manage their diabetes, mental health, and overall lives. I am humbled by this award and feel immense gratitude for the privilege of knowing and supporting so many wonderful individuals throughout their diabetes and life journeys.

Here is a community event checklist that can help you feel confident starting your own project and continue to modify as you go:

- Define the event's purpose, goals, financial support, and budget.
- Select a chairperson.
- Secure support from key stakeholders: educators, health care providers, and health department.
- Form a planning committee with clear roles and deadlines with regular meetings.
- Secure venue, date, and catering.
- Develop timeline, sessions, and program.
- Engage pharmaceutical representatives and local businesses for financial support.
- Invite speakers and sponsors.
- Approve and finalize the event program and distribute.
- Coordinate conference displays.
- Organize registration and pharmaceutical finances.
- Create promotional materials, programs, and posters recognizing sponsors.
- Arrange for local media coverage.
- Secure volunteers (nursing and medical students) for setup and assistance.
- Do a walk through in event space to help with logistics and last-minute issues.
- Ensure all technical needs are met and audiovisual equipment rented if needed: laptops, screens, microphones, etc.
- Provide clear signage and directions.
- Obtain speaker handouts a week in advance and print.
- Have moderators assigned for all speakers.
- Have a contingency plan for emergencies.
- Collect feedback from participants and stakeholders and review budget.
- Debrief with planning committee and send thank you notes.
- Share outcomes, impact, budget, and document processes and explore options for future development of program. ■

Diabetes Tech Shouldn't Be Out of Reach: **danatech from ADCES** **Introduces Its New** **Affordability Program Finder**

Our easy-to-use Diabetes Technology Affordability Program Tool helps healthcare professionals like you quickly identify cost-saving options for diabetes technology including CGMs, insulin delivery systems and smart pens, all in one place.

- Find discounts, copay cards, patient assistance programs and more.
- Empower your patients with accessible care.
- Save time with one central resource.

» **danatech.org**



Scan the QR code to explore
this tool and find options to
help your patients get the
tech they need today.





Entrepreneurship in Diabetes Prevention and **Community Health**

An Interview With Terry Ann Scott, PhD



This interview is part of ADCES's series highlighting diabetes care and education professionals who have pursued entrepreneurship and innovative models of care delivery. These conversations are intended to provide insight, inspiration, and practical guidance for professionals interested in expanding their impact through leadership, prevention, and community-based health initiatives.

The interviewee is a public health professional, health coach, and entrepreneur working in chronic disease prevention, diabetes prevention, lifestyle coaching, and community health education. Their work focuses on expanding access to evidence-based diabetes prevention programs through collaboration with health care organizations, community health workers (CHWs), academic institutions, and public health partners. In addition to program leadership, they contribute to workforce development and curriculum development related to chronic disease prevention and community health initiatives.

How Did You Get Involved in the Diabetes Field?

My work in diabetes prevention developed through my experience as a health coach and public health professional, where I witnessed firsthand the significant impact diabetes has on individuals, families, and communities—particularly within underserved populations.

With a background in social work and public health, I became increasingly focused on prevention and early intervention. I recognized a major gap in care, where many individuals were not receiving structured lifestyle support until after progression to type 2 diabetes or other chronic conditions.

That realization led me to focus on evidence-based prevention programs such as the National Diabetes Prevention Program (NDPP), which emphasizes behavior change, education, accountability, and long-term support to reduce risk before disease progression occurs.

Over time, I became passionate about helping individuals understand that prevention is not only possible but also sustainable when people are

provided with education, coaching, community support, and practical tools for lifestyle change.

Can You Discuss a Specific Initiative or Program You Have Developed to Improve Diabetes Care and Its Impact on Participants?

One initiative I developed focuses on bridging the gap between diabetes education and long-term lifestyle support.

While diabetes self-management education and support (DSMES) provides essential clinical knowledge, many individuals continue to need ongoing accountability, coaching, and structured support after formal education ends. To address this need, a prevention-focused model was developed that allows individuals living with type 2 diabetes to transition into or participate alongside NDPP-style programming centered on sustainable lifestyle change.

This extended-support approach incorporates group coaching, nutrition education, physical activity guidance, and behavioral support over a longer duration, helping participants maintain engagement and consistency.

Participants in these programs have experienced meaningful improvements in health outcomes, including weight loss, reductions in A1C levels, improved blood pressure management, and increased physical activity. Equally important, many participants report increased confidence, stronger self-efficacy, and a greater sense of community support, all of which play a critical role in long-term behavior change and chronic disease prevention.

What Is the Most Challenging Part of Being an Entrepreneur in Health Care, and How Do You Manage It?

One of the greatest challenges of entrepreneurship in health care is balancing mission-driven work with the operational realities of sustaining a business or nonprofit organization.

There is a constant need to balance community impact with program funding, staffing, administrative responsibilities, outreach, and long-term sustainability. In prevention-focused work

especially, securing resources and maintaining program growth can be challenging despite the significant public health need.

To manage this, I prioritize structure and intentional time management. I dedicate specific time blocks to administration, program development, partnerships, curriculum planning, and participant engagement. Maintaining that balance allows me to stay connected to the purpose behind the work while continuing to build sustainable systems and community partnerships.

What Advice Would You Give Someone Who Is Considering Starting Their Own Health-Focused Business or Program?

Start with a clear focus and build intentionally.

Many professionals enter entrepreneurship wanting to solve multiple problems at once, but it is often more effective to begin with 1 strong, evidence-based service or program and build from there.

I encourage professionals to focus on:

1. Identifying a clear target population
2. Developing 1 sustainable and measurable program
3. Establishing systems for participant engagement and outcome tracking
4. Building strategic partnerships within health care and community settings.

It is also important to remain adaptable. Public health and health care needs continue to evolve, and successful programs are those that can respond to community needs while maintaining quality and consistency.

How Do You Stay Motivated Personally and Professionally?

I stay grounded by maintaining routines that support both physical and mental wellness, including regular exercise, reflection, continued learning, and staying connected to my purpose.

Professionally, I remain motivated by the impact of prevention work. Seeing participants improve their health outcomes, reduce risk factors, and gain confidence in managing their

health reinforces the importance of this work and continues to inspire me.

I also find motivation in helping expand access to prevention services in communities that have historically experienced barriers to health care, education, and chronic disease support.

How Do You Maintain Your Professional Competencies?

I maintain my competencies through ongoing professional development, continuing education, and active engagement in the diabetes prevention and public health fields.

This includes participating in ADCES trainings, Centers for Disease Control and Prevention (CDC) related NDPP updates, webinars, conferences, and workforce development initiatives. My work in program delivery, curriculum development, and CHW training also requires me to stay current with research, clinical guidelines, and best practices in chronic disease prevention.

In addition to formal education, I believe there is significant value in learning directly from participants and communities. Their lived experiences provide important insight that strengthens program development and delivery.

What Certifications or Credentials Are Especially Valuable for Professionals Working in Private Practice or Prevention Programs?

For professionals involved in diabetes prevention and chronic disease management, CDC-recognized Lifestyle Coach training is foundational for delivering NDPP programs effectively.

For clinicians specializing in diabetes care and education, the certified diabetes education and care specialist credential provides advanced expertise and credibility within the field.

Additional training in motivational interviewing, health coaching, behavior change strategies, cultural competency, and community health can also be highly beneficial, particularly for professionals serving diverse populations.

Because chronic disease prevention is multidisciplinary, ongoing education across nutrition, physical activity, behavioral health, and public health is essential.

How Do You Collaborate With Other Health Care and Diabetes Care Professionals?

Collaboration is central to effective diabetes prevention and chronic disease management.

I work closely with health care providers, registered dietitians, fitness professionals, public health organizations, and CHWs to ensure participants receive comprehensive and coordinated support.

This collaboration includes referral partnerships, shared educational initiatives, participant support strategies, and communication regarding program progress when appropriate. I also work with academic institutions and workforce development programs to help strengthen the pipeline of trained prevention professionals and CHWs entering the field.

How Do You Obtain Referrals for Your Programs?

Referrals are generated through a combination of health care partnerships, community outreach, digital engagement, and word-of-mouth referrals from participants.

Health care providers often refer individuals with prediabetes, obesity, hypertension, or elevated chronic disease risk factors. Community organizations, health departments, and CHWs also play an important role in connecting individuals to prevention resources and support services.

CHWs are especially valuable because they often have trusted relationships within the communities they serve and can help bridge gaps between health care systems and community-based prevention efforts.

How Do You Approach Cultural Competency and Addressing Implicit Bias in Health Care?

Cultural competency is essential in chronic disease prevention because health behaviors are influenced by culture, environment, lived experiences, and access to resources.

I approach this work through ongoing education, self-reflection, active listening, and community engagement. It is important to understand the social and cultural context in

which individuals are making health decisions rather than relying on assumptions or one-size-fits-all approaches.

I also believe health care professionals must continuously examine implicit bias and work to build trust, respect, and culturally responsive programming. Improving health outcomes requires not only education but also meaningful relationships, understanding, and equitable access to prevention resources. ■

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“Focus on making the first visit immediately valuable and personalized. Set 1 or 2 achievable goals, clearly explain the why, and ensure there is a defined next step. Framing follow-up as part of an ongoing partnership rather than a one-time visit can make a big difference.”

“I would consider teaching the carb counting/nutrition piece later in the class or at another session entirely. The basics such as cutting out sweet beverages and maybe basic plate planning could work sometimes. Our service has a 2-day comprehensive class. The first day, we teach physiology, exercise, medications, and take a break for lunch. Then after about an hour, they come back, and we teach carb counting (with foundational knowledge of macronutrients identification, label reading, and meal plan suggestion). In the past we had a 4-part class, and we taught nutrition in the part 3 session. We continue to have high attendance for patient completion when we discuss nutrition 2nd/3rd/4th session.”

What's Your Advice?

This column focuses on sharing advice and ideas with one another. When you see our questions posted in our monthly member newsletter and on our ADCES social media channels, such as Instagram and LinkedIn, we hope you take a moment to share your advice!

Question: What's Your Advice for Getting Patients to Return After the Initial Visit?

Thanks to everyone who sent their answers via email and social media!

“Tell them you have already gotten insurance approval, call the wrap-up session (to gather outcomes) session 4 or 5 for example so they don't blow it off, save the “hot topics” (what to eat) for session 2 or 3, do a “putting it all together” title at the end, give the master “checklist” toward the end of education (what they should monitor, how often, etc, going forward), be energetic in your delivery and ensure THEIR questions are answered each session.”

“Meet them where they are, emotionally, with their diabetes management. We all know this, but using motivational interviewing and empowerment teaching methods helps engage them in their diabetes self-management journey. It goes without saying that our words matter and we need to be respectful and compassionate about what they are going through. Every patient I work with always reminds me that they come back to see me because I listen and I understand.”

“For every one-on-one visit, I always start with, “What do you want to talk about today?” This opens the visit and makes the person realize this visit is about them. I welcome “rapid fire questions” because that is really what the visit is about.”

“If we are talking about a group class, I would strongly suggest not using a PowerPoint presentation word for word. Sure, you can have it for visuals and reinforcing content. But going slide by slide does not engage most participants. We have to remember that they are coming to learn about the information that is important to them, not us. I like to go around the room and ask every one of them what is their biggest burning question, and we roll from there. Just by answering their questions, I can guarantee we get through the topic areas that we think we need to cover. When people really feel that they are heard, they will come back . . . with more engaging questions.”

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Diving Deep

Navigating Diabetes Beneath the Surface

ANDREW GOLDEN , MD

Each time I jump into the water, I'm in awe of what I discover. For those of you who SCUBA (Self-Contained Underwater Breathing Apparatus), I suspect you have similar feelings. I've had the privilege of exploring the Great Barrier Reef in Australia, swimming alongside monk seals and green sea turtles in Hawaii, and meandering through the massive stalactites and stalagmites of the Great Blue Hole in Belize. While a SCUBA certification can be completed in a week, it takes months or years to fully understand the nuances of the craft. Participating with diabetes, though, adds some "depth" that I hope to "dive" into throughout this piece.

For many years, individuals with diabetes were barred from participating in scuba diving. That all changed in 2005, when professional societies released consensus guidelines about scuba diving with insulin-dependent diabetes. The Divers Action Network (DAN), an amazing organization focused entirely on diving safety, was one of the parties responsible for establishing these set of rules that have allowed patients with insulin-dependent diabetes to explore the reaches of the ocean. DAN has incredible resources and articles for any health professional working with scuba divers with diabetes.

The “[Guidelines for Diabetes and Recreational Diving](#)” can be found on the DAN website.

Individuals beginning their scuba dive training must undergo health screening. For those of us with chronic disease, this includes an evaluation by a health care provider. This can be completed by an endocrinologist or primary care physician, but patients should be referred to a specialist in dive medicine if additional expertise is needed. In the United States, the Undersea and Hyperbaric Medical Society (UHMS) provides helpful resources to find a professional licensed in dive medicine. Although I am certainly not an expert

such as having an A1C <9% in the month leading up to my trip, I started preparing for the day of my dive adventure. The day before my scuba dives, I focused on adequate hydration, drinking a lot of water and sugar-free electrolyte drinks while avoiding those sugary (yet delicious) alcoholic beverages. I also pack my dry bag with my water sport essentials but also with extra water, glucagon, glucose tabs, glucometer, and snacks. For me, granola bars are the best snack between dives to keep my blood glucose ideal.

I was scheduled to do a morning 2-tank dive, meaning I would be doing 2 separate scuba dives

Table 1 Summary of Recommendations From the Guidelines for Diabetes and Recreational Diving

Predive Requirements	Day of a Dive
At least 18 y old	Inform dive buddy and/or divemaster
A1C ≤ 9.0%	Perform glucose checks 60 min, 30 min, and immediately prior to diving
No history of hypoglycemia unawareness	Blood glucose ≥150, stable or rising, before entering water
No instances of hypoglycemia requiring third-party intervention	Delay dive if blood glucose >300 or <150
Under medical supervision	Stop dive immediately if any symptoms develop
	Carry rescue medications

in dive medicine, I believe my medical training in emergency medicine and experiences with type 1 diabetes facilitate a nuanced understanding of scuba diving with diabetes.

Before every dive trip, I review the DAN/UHMS guidelines (Table 1). I typically scuba dive through guided tours at dive shops. These dives are led by divemasters, who help orient and guide divers to individual dive sites and ensure appropriate safety protocols are followed. However, the safety of each diver is their own responsibility. To dive safely, individuals with diabetes must be knowledgeable and responsible for their own health during each of their excursions.

A couple months ago, I went scuba diving in the blue, warm waters of the US Virgin Islands. Knowing I had fulfilled all the criteria in the guidelines related to “selection and surveillance,”

with an appropriate time on the boat in between. Before leaving for the dive shop, I ate sugar-free yogurt with granola and some of the juiciest mango I’ve ever had. This provided a perfect amount of energy and carbohydrates before leaving for the day. I often dose reduce my insulin by about 25% so that my blood sugar rises to be between 150 and 300 mg/dL, as recommended by the DAN/UHMS guidelines.

When driving to the dive shop, I keep a close eye on my continuous glucose monitor (CGM) to make sure my blood sugars are stable or rising within the appropriate range. After checking in at the shop, I stop to talk with the divemaster. I disclose my diabetes to them and to my buddy and show them where I keep my glucagon in the case of any emergency. I keep an updated letter of medical clearance from my physician with me

when I travel in case my divemaster requests it, although this is rare.

As our boat leaves the dock around 8 am, I continued keeping a close eye on my CGM and ended up giving an additional small bolus of insulin because my blood glucose was rising a bit too quickly. When we near our first dive site, I detach my insulin pump and tuck it into my bag. I don my gear and straddle jump into the blue abyss. After an amazing 50 minutes, I climb aboard the boat and after prepping my equipment for my next dive, reattach my insulin pump and check my CGM reading. I also double-check my blood glucose levels with my glucometer to make sure this reading is accurate. My blood glucose is 249, so I give myself a small bolus to keep my blood glucose stable during my next dive.

After repeating this procedure for dive number 2, it's time to rinse off my gear and enjoy the beautiful (but bumpy) ride back to the dock. Scuba diving can be quite strenuous, especially if currents or winds are particularly strong, so I avoid any intense activity the rest of the afternoon and evening to prevent my blood glucose from dropping later in the day.

As always, every dive will vary, and every person will react differently. When I'm at all unsure, the safest decision is to avoid diving. A little extra time on the boat may be what is needed to have the best (and safest) dive the next time around!

Hopefully this guide helps you with your next patient embarking on a dive trip. When they get back, ask to see all their pictures! The ocean is an awe-inspiring ecosystem that all of us, including those with insulin-dependent diabetes, should explore. ■

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AG wrote, reviewed, and edited the manuscript.

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Transforming Diabetes Management in India Through Education and Interprofessional Collaboration



KESHAVI KILLI , MBBS, APARNA KUNA, PH.D

DILIP KUMAR KANDAR, MBBS, MD,

AND GREESHMA CHORAGUDI, M.SC

From the Editor:

If you've ever wondered about what diabetes care and education is like in other countries, we have an article for you. Learn more about the situation, challenges and bright spots of diabetes education in the country of India. We invite other countries to let us know more about care in your area, especially initiatives that we can duplicate in the U.S.

—Amy Hess-Fischl, ADCES in Practice Editor

India is home to over 89.8 million people (20-79 years) living with diabetes, a figure expected to increase to 156.7 million by 2050.¹ This sharp rise presents not just a medical crisis but also a societal challenge that requires more than just medication. Effective diabetes care hinges equally on patient education, behavioral change, and collaboration among the health care professionals. Yet these components remain significantly underdeveloped in India's health care delivery system.

In our clinical experience, we have repeatedly seen that successful diabetes self-management is not driven by prescriptions alone. Patients often arrive with highly variable blood glucose levels, accompanied by anxiety and misinformation combined with emotional exhaustion. Many are uncertain about the most basic self-care practices, such as how to take their medicines, what to eat, or why physical activity matters. These are not peripheral issues; they are the very pillars on which long-term disease management stands.

Despite its importance, structured diabetes self-management education is rarely integrated into routine outpatient care in India. In the IMPACT survey of 2424 Indian physicians, 73.4% reported providing less than 10 minutes per patient in routine diabetes consultations, far too little time for meaningful self-management counseling.² Moreover, studies in low-income and rural communities highlight substantial barriers to accessing diabetes education and support services, with many patients reporting no structured education, either in person or digital.³ This disconnect leaves many without the tools they need to manage their condition on a daily basis.

We have seen firsthand how people with complications, such as foot ulcers, often carry emotional burdens, such as fear, guilt, helplessness, and hope, that interfere with healing. In such cases, clinical treatment alone is insufficient. Education, emotional support, and confidence building are extremely important to help patients feel that they can successfully manage their health journey.

At our diabetes center, we run outreach clinics that combine medical consultation with customized patient education. These sessions often lead to noticeable transformations. When individuals understand why they are advised to avoid certain foods, how glucose levels impact wound healing, or what physical activity does to insulin sensitivity, they become more empowered and engaged in self-care. Education turns passive patients into active participants in their care. These individual successes inspired us to examine the broader systemic factors that enable effective diabetes education in India. However, diabetes care and education specialists, referred to as diabetes educators in India, are not available in sufficient numbers to meet the current demand of patient education.

At the recommended ratio of one diabetes-care professional per 1000 patients,⁴ India would require over 89 800 trained educators to meet the needs of its current adult population with diabetes. Although structured group education models endorsed by international guidelines^{5,6} can enhance the reach of each educator, current capacity remains modest. With an estimated 5000 to 7000 educators trained to date, even optimistic projections would bring the total to 20 000 to 25 000 over the next 5 years, highlighting the need for sustained investment in workforce development to strengthen diabetes self-management support.

To meet the rising demand for such support, several structured programs have emerged to train diabetes educators in India. One of the most well known is the [National Diabetes Educator Program](#), led by Dr Mohan's Diabetes Education Academy in collaboration with the [Indian Association of Diabetes Educators](#). This initiative aims to train health professionals in patient education, communication, and counseling skills that are vital to long-term care. Similarly, the Association of Diabetes Educators offers training tailored to doctors, nurses, dietitians, pharmacists, and physiotherapists. These programs focus on integrating education into clinical settings and

Table 1 Core Aspects of prominent Indian and US diabetes educator programs

Program Name/Website	Duration of Course and Eligibility Criteria	Curriculum Highlights	Assessment Methods
<u>National Diabetes Educator Program (NDEP)</u>	10 months - BPharm, Bsc/Associate of science in nursing or BSN, BA in nutrition or similar	40 hours of instruction over 10 months (1 Sunday per month). Topics include diabetes pathophysiology, nutrition, physical activity, monitoring, and counseling techniques.	Multiple-choice questions, role-plays, practical assignments. Certificate awarded upon completion.
<u>Association of Diabetes Educators (ADE)</u>	6 months - Graduates in nutrition, nursing, pharmacy, occupational therapy, and physiotherapy (eg, BSc nutrition, BSc nursing, B Pharm, bachelor's in occupational therapy, bachelor's in physiotherapy)	The Diabetes Educator Certificate Course (eDEC) offered by Help Defeat Diabetes Trust encompasses a comprehensive curriculum covering the history, epidemiology, diagnosis, management, and complications of diabetes mellitus along with self-management strategies, counseling techniques, and emerging trends in diabetes care.	Continuous self-assessment tests throughout the course and 1 final online test taken under the supervision of a mentor. Upon successful completion, a certificate of training by Help Defeat Diabetes Trust is issued.
<u>Certificate Course in Diabetes Care and Education (IAPEN India)</u>	6 months - Graduate in nutrition or nursing (BSc or above), bachelor's of physiotherapy, occupational therapy, doctors, nutrition graduates	Intensive, evidence-based, distance mode/online learning program focusing on introduction to diabetes, diabetes education, diabetes management, diabetes lifestyle	Assessment methods include project work, manuscript preparation, online examination. Certificate awarded upon completion.
<u>Certified Diabetes Educator (CDE)–NIPHTR</u>	3 months - Graduation in public health, nutrition, nursing, pharmacology, occupational therapy and physiotherapy	Curriculum includes theoretical and practical training to equip candidates with skills in diabetic foot care, treatment planning, documentation, patient education, emergency response, and interdisciplinary collaboration. Also trains CDEs to assess, educate, and support patients in managing and preventing diabetes complications, in line with clinical protocols.	Minimum 80% overall attendance, with at least 75% in theoretical and 90% in practical skills training sessions Assessments as per course guidelines
<u>Certified Diabetes Care and Education Specialist (CDCES) – United States</u>	- Varies - Self-paced and practice-based program - Health care professionals with a minimum of 2 years of professional practice experience, 1000 hours of diabetes care and education within the past 5 years, with at least 200 hours in the last 12 months	CDCESs educate and support people affected by diabetes, helping them and their families understand and manage the condition, achieve behavioral and treatment goals, and optimize health outcomes.	The exam is a 4-hours, 175-question (150 scored) multiple-choice exam conducted by the Certification Board for Diabetes Care and Education, and continuing education is required for recertification.

emphasize behavior change as a therapeutic tool. The Certificate Course in Diabetes Care and Education, developed by IAPEN India, targets clinical nutritionists and allied health professionals, offering evidence-based content on diabetes management and nutrition therapy, particularly

for hospitalized and critical care patients. Another valuable initiative is the Certified Diabetes Educator (CDE) course, conducted by the National Institute of Public Health and Training Institute under the guidelines of the Ministry of Health and Family Welfare. This program focuses on upskilling

professionals from fields such as public health, nursing, pharmacology, and physiotherapy. It aims to equip them to guide patients in self-management, set personalized health goals, and improve overall outcomes. Table 1 outlines the core aspects of prominent diabetes educator programs in India alongside the US Certified Diabetes Care and Education Specialist (CDCES) credential.

Despite their value, these programs are still limited in scale and accessibility. Nationwide data on their reach, effectiveness, or integration into health care systems is scarce. Rural and underserved areas, in particular, face a severe shortage of trained diabetes educators. Although these initiatives mark a strong beginning, they must be expanded and embedded more deeply into health care delivery systems across India to effectively address the aggressively growing burden of diabetes.

To understand the real-world impact and limitations of such efforts, it is important to examine the daily responsibilities of a trained diabetes educator in India. These professionals often work closely with patients through individual sessions, typically seeing 7 to 10 per day, and also lead group interactive sessions comprising 5 to 7 participants, especially during medical camps and outreach initiatives (which usually include health camps organized by nongovernmental organizations, trusts, or pharmaceutical companies through outpatient clinics and free camps conducted by the clinic itself twice a month and on special occasions, such as World Diabetes Day or World Heart Day, to extend services beyond regular walk-in patients). Sessions generally last 20 to 40 minutes, with a focus on personalized care plans. Their approach aligns with the Diabetes Self-Management Education and Support framework, which covers key areas such as healthy eating, physical activity, blood glucose monitoring, medication adherence, risk reduction, problem-solving, and healthy coping mechanisms.

Working as part of a multidisciplinary team

including physicians and dietitians, these educators help deliver comprehensive, patient-centered care. Self-care strategies, such as lifestyle modification, foot care, and regular glucose monitoring, are emphasized, with active caregiver involvement encouraged to reinforce learning. In some instances, dietitians holding an MSc in nutrition or diet therapy or dietetics independently manage both meal planning, management, and diabetes education, attending to a similar number of patients, because of their extensive academic training to deliver integrated care.

However, the need for early and preventive interventions is growing, particularly in response to alarming trends among India's youth. Recent data show that India has the second-highest incidence of type 2 diabetes mellitus among children and adolescents globally, with a prevalence of 397 per 100 000. A national study reported a prevalence of 12.3% in boys and 8.4% in girls ages 10 to 19 years, with obesity emerging as a significant contributing factor. These figures accentuate an escalating epidemic that demands timely action and sustained lifestyle interventions to protect future generations.⁷ This alarming rise among young people reinforces the need for age-appropriate, school-based education programs alongside community outreach.

Recognizing this urgency, education-focused initiatives are beginning to target younger populations in India. On May 14, 2025, the Central Board of Secondary Education, under the Ministry of Education, issued a directive mandating all affiliated schools to establish "Sugar Boards."^{8,9} These boards are designed to educate students about the risks of excessive sugar consumption, a move prompted by recommendations from the National Commission for Protection of Child Rights and growing national concern over diet-linked chronic diseases in children. The Sugar Boards initiative is designed to promote awareness around recommended sugar intake, the sugar content of common snacks and beverages, and the long-term health risks of

overconsumption. Schools are also required to conduct regular awareness sessions to encourage informed dietary habits and support students' long-term metabolic health.

Together, these developments signal a gradual but meaningful shift in India's approach to diabetes. Education is no longer seen as a supplementary tool but as a central pillar in the fight against chronic disease. Community- and school-based programs, formal diabetes educator training, and school-level awareness campaigns are all important components of this evolving strategy. Still, significant gaps remain. Further national policies must reinforce this momentum with clear guidelines, funding support for implementation of proposed policies, and workforce development strategies to ensure that diabetes education becomes a standard feature of routine care.

The path forward is clear: Education must become the foundation of diabetes management in India, not an afterthought. We must move toward collaborative care models that bring together physicians, educators, and dietitians to support patients holistically. Scaling up training programs, embedding educators in primary care settings, and nurturing community awareness are critical next steps. As we work to slow and eventually reverse the diabetes epidemic, one principle must guide us: "Education is not a complement to treatment—it is the treatment."

Empowering individuals with knowledge is our strongest defense against diabetes, and India is beginning to lay the foundation for a healthier, more informed future. To truly accelerate this momentum, we must promote global collaborations by sharing training resources, best practices, and implementation models across borders. Countries such as the United States, the United Kingdom, Australia, and Germany have demonstrated successful models of integrating structured diabetes education into routine care. Institutions across these nations can converge to support bilateral training exchanges, mentoring programs, and scalable digital platforms. By

drawing on proven international frameworks and partnering with global leaders in diabetes education, India can chart its own path to ensure that education becomes the very cornerstone of diabetes management nationwide. ■

Author Contributions

Keshavi Killi: Conceptualization, Writing - original draft.

Aparna Kuna: Writing - review & editing.

Dilip Kumar Kandar: Writing - review, editing, & validation.

Greeshma Choragudi: Writing - review & editing.

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Test YOUR KNOWLEDGE

Note: Adapted from *The Clinical Advantage Bootcamp: Type 1 Diabetes Management Certificate* MODULE 4: Supporting Type 1 Diabetes Care With Technology: A Hands-On Guide. This certificate program is a collaboration between danatech, the Association of Diabetes Care & Education Specialists, and the American Association of Nurse Practitioners through unrestricted educational grants from Abbott and Medtronic and the Helmsley Charitable Trust.

Answers appear on page 80.

- 1** According to the 2025 ADA Standards of Care, which statement best reflects recommendations for diabetes device use in people with diabetes?
 - A. CGM should only be used after failure of fingerstick monitoring
 - B. Diabetes devices should be offered to people with diabetes.
 - C. CGM is only recommended for patients using insulin pumps
 - D. Diabetes devices should be reserved for patients with frequent hypoglycemia
- 2** What is the primary advantage of automated insulin delivery (AID) systems compared to traditional insulin pumps?
 - A. Lower cost and fewer supplies
 - B. Elimination of the need for CGM
 - C. Integration of CGM data with an algorithm to automate insulin delivery
 - D. Ability to deliver only basal insulin
- 3** Which of the following best describes the “Time in Range” metric used in CGM interpretation for nonpregnant adults who are not at higher risk for hypoglycemia?
 - A. Percentage of glucose readings between 80-140 mg/dL
 - B. Percentage of time glucose is between 70-180 mg/dL
 - C. Average glucose over 24 hours
 - D. Number of hypoglycemic events per week
- 4** Which barrier may limit equitable access to diabetes technology?
 - A. Overuse of CGM data
 - B. Lack of smartphone compatibility or access
 - C. Excessive clinician training requirements
 - D. Too many available device options
- 5** What is a key function of smart insulin pens?
 - A. Automatically deliver insulin without user input
 - B. Replace the need for carbohydrate counting
 - C. Provide dose calculators, reminders, and insulin tracking via smartphone apps
 - D. Eliminate the need for glucose monitoring

If these questions sparked your interest, visit [The Clinical Advantage Bootcamp: Type 1 Diabetes Management Certificate](#) and take MODULE 4: Supporting Type 1 Diabetes Care With Technology: A Hands-On Guide for 1.0 CEU

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Test Your Knowledge Answers

Questions appear on page 78.

1. **B:** ADA SOC recommends that diabetes devices should be offered to people with diabetes.
2. **C:** AID systems integrate CGM, pump, and algorithm to automatically adjust insulin delivery.
3. **B:** Time in range is standardized as 70-180 mg/dL and is a key CGM metric.
4. **B:** Smartphone access, insurance coverage, and social determinants of health can limit access to technology.
5. **C:** Smart pens enhance decision-making through dose calculators, reminders, and data tracking.

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Clinical Advantage Bootcamp: Type 1 Diabetes Management Certificate



Practical Type 1 Diabetes Training for Today's Frontline Clinicians

Primary care is increasingly where Type 1 diabetes is first recognized, diagnosed, and managed. Yet many clinicians have had limited access to formal training for this growing responsibility.

To help close this gap, danatech from the Association of Diabetes Care & Education Specialists and the American Association of Nurse Practitioners partnered to create a first-of-its-kind educational program:

Clinical Advantage Bootcamp: Type 1 Diabetes Management Certificate

Participation is completely free thanks to unrestricted educational grants from Abbott and Medtronic. We also gratefully acknowledge the Helmsley Charitable Trust for its independent grant support.

What You'll Learn

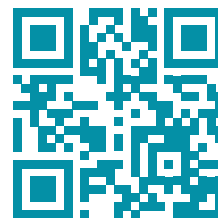
Participants will strengthen their ability to:

- » Recognize, diagnose, and coordinate treatment for Type 1 diabetes earlier through disease risk assessment, screening, and staging
- » Apply current standards of care and emerging evidence, including FDA-approved disease-modifying therapies
- » Integrate diabetes technologies into care, including CGM and automated insulin delivery systems
- » Utilize multidisciplinary referral pathways while maintaining continuity in primary care
- » Address psychosocial challenges and the impact of social determinants of health on outcomes



Program Highlights

- » Seven stand-alone online modules designed for busy clinicians
- » Real-world, evidence-based guidance you can apply immediately in practice
- » Up to 8.25 CE/CME credits available
- » Complete individual modules at your own pace or finish all seven to earn the certificate
- » **No cost to participate**



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Learn More**

danatech.org



Association of
Diabetes Care & Education
Specialists

Apply for **DSMES PROGRAM ACCREDITATION** and Start Receiving Reimbursement for Your Services.

ADCES Diabetes Education Accreditation Program (DEAP)

As one of two national accrediting organizations for Medicare, ADCES® offers full support to healthcare professionals who provide diabetes self-management education and support (DSMES) and want to receive reimbursement for diabetes self-management training (DSMT), the Medicare benefit available to all Medicare beneficiaries with a diagnosis of diabetes.

Why Choose ADCES?

When your DSMES program is accredited by ADCES, you're immersed in a community of peers and experienced staff who will support you every step of the way on your accreditation journey. Other benefits include:

- Complimentary ADCES Membership
- Accreditation Resources
- Practical Guidance
- Weekly Office Hours
- Monthly Coffee Breaks
- Complimentary Webinars
- Personalized Reimbursement Help

Application fees begin at \$1,100 for all program types. To learn more about the DEAP Standards, Application Toolkit and Reimbursement Requirements, visit adces.org/accreditation.



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