

# If DSME Were a Pill, Would You Prescribe It?

Margaret A. Powers

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■ **EDITOR'S NOTE:** This address was delivered by Margaret A. Powers, PhD, RD, CDE, President, Health Care & Education, of the American Diabetes Association (ADA), at the ADA's 76th Scientific Sessions in New Orleans, La., on 11 June 2016. Dr. Powers conducts research and has a clinical practice as a registered dietitian and diabetes educator at the International Diabetes Center at Park Nicollet in Minneapolis, Minn. Her research focuses on improving diabetes outcomes, including factors that affect the clinical, psychosocial, and behavioral aspects of diabetes. Dr. Powers has been an ADA volunteer for more than 25 years, including serving as a founding editor of *Diabetes Spectrum*. She is the lead author of the 2015 joint Position Statement on Diabetes Self-management Education and Support published by the ADA, American Association of Diabetes Educators, and Academy of Nutrition and Dietetics. She is the recipient of the ADA's Outstanding Educator in Diabetes Award and has published research, authored numerous articles and chapters, published five books, and is an international presenter. Dr. Powers holds a doctorate in education with a focus on performance improvement from Capella University. She received her Master of Science from the University of Illinois at Chicago and her Bachelor of Science from Michigan State University. She completed her dietetic internship at Cook County Hospital in Chicago.

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The International Diabetes Center (IDC) was founded almost 50 years ago on the premise that the person with diabetes is the center of care. In the original IDC health professional training programs, a circle diagram was used to describe diabetes care and education; the person with diabetes was in the center circle, with family and friends, community, health care, and government in the outer circles (1).

Today, we call this patient-centered care. Although the diabetes ecosystem is more complex, the premise remains the same: the person with diabetes is always the center of our focus, and education and support are critical components of quality diabetes care. My aim is to bring

clarity to some of the complex issues surrounding diabetes care, and specifically diabetes self-management education and support (DSMES, or DSME for short). I will address the question: If DSME were a pill, would you prescribe it? Additionally, I will focus on how we all need to make noise about diabetes to bring attention to the urgent need to address this burgeoning epidemic (2).

## Making Noise About Diabetes

Currently, in the United States, most of the taxpayer dollars spent on diabetes go toward treating complications and hospitalizations (3). I believe we need a louder, more focused effort to bring about a paradigm shift toward spending more resources on the prevention, research, and programming

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efforts that can reduce those incidents and costs. We need to make noise about diabetes.

In an effort to broaden and deepen awareness about these issues, the American Diabetes Association (ADA) sponsored Capitol Hill Advocacy Day in Washington, D.C., on 7 April 2016. This event empowered constituents and people with diabetes to advocate for increased funding for diabetes research and programs and to educate members of Congress about the staggering costs of diabetes-related health care.

The advocates—people like you and me who care deeply about these issues—were joined by a special group called Team Tackle (4). This group includes past and present players from National Football League (NFL) football teams who have personal connections to diabetes. Team Tackle members added their voices to the effort by speaking at a press conference and then meeting with their legislators to talk about the diabetes crisis.

Several advocates shared powerful personal testimonies at the press conference. One was from Team Tackle's Mike Golic, whom you might recognize as an ESPN sports commentator and an anchor of the show "Mike and Mike." Mike's father had diabetes, but he never talked about it. He handled his diabetes alone, in a separate room, out of sight of his family. Now Mike has type 2 diabetes, and he shared how crucial it is that we get diabetes "out of the room" and make it seen and known. He stressed that we have to talk about diabetes and that he was talking to his legislators about diabetes prevention and reducing the burden of those living with diabetes.

The second story came from 11-year-old Aiden Dine. Aiden has had type 1 diabetes for 10 years, and he spoke clearly and passionately about his dislike of diabetes. He stated at the press conference that, although he greatly appreciates advances in diabetes-related tech-

nology, research, and the expert care and education he receives, he desperately wants to put an end to diabetes. Aiden mentioned that he is hopeful about the research toward an artificial pancreas, but he said that will not be enough for him; he wants to see a cure developed. He communicated his passion about this and stated he was urging his legislators to increase research funding to help make a cure become reality for him and for the many others like him.

Another moving story came from NFL linebacker Dont'a Hightower. He spoke about his mother's recent diagnosis of type 2 diabetes and her struggle to manage her diabetes while still maintaining family traditions such as big family meals and homemade baked goods. Diabetes self-management is a struggle, and Dont'a was speaking with his legislators about the need to educate and support people with diabetes, especially when they are first diagnosed.

We all need to lend our voices and tell our own stories to draw attention to and raise awareness of diabetes, so I, too, shared the story of how my family has been affected by the disease when I met with my legislators. My mother was diagnosed with type 2 diabetes when she was 65 years old. At the age of 81, she needed insulin. Fortunately, I am a registered dietitian and certified diabetes educator and was able to help her integrate insulin therapy, including food and activity decisions, into her everyday life.

Like my mother, every person with diabetes needs individualized education and support to carry out daily diabetes self-management and care, but not all of them have family members who are equipped to provide this type of information and customized support. As I spoke with my legislators, I conveyed the importance of education and support as critical components of quality diabetes care and stated that we need to increase access, referral, and uti-

lization to individualized diabetes education programs.

### Utilization of DSME

Let us look at current utilization rates of DSME, but first let me define diabetes education (5).

- DSME is the ongoing process of facilitating the knowledge, skill, and ability necessary for diabetes self-care.
- Diabetes self-management support (DSMS) includes activities that assist people with diabetes in implementing and sustaining the behaviors needed to manage their condition on an ongoing basis.

I am expanding these definitions to include medical nutrition therapy (MNT) and emotional support.

Now, let us look at how well DSME is utilized. Data on medical billing codes reflect very low utilization rates for DSME and MNT. Less than 7% of those with private insurance (6) and only 5% of Medicare beneficiaries (7) received diabetes education during the first year after their diabetes diagnosis; only 1.7% of Medicare beneficiaries with diabetes had a Medicare claim for DSME in 2012 (8).

You might be wondering, "Why is DSME so underutilized?" The ADA *Standards of Medical Care—2016* guidelines (9) recommend that all people with diabetes receive DSME and MNT. If this is such a critical resource for helping people with diabetes successfully self-manage their disease, why is utilization so low? Some barriers include confusion about the benefits of DSME, when and how to refer patients, and what DSME typically includes.

### If DSME Were a Pill, Would You Prescribe It?

In an effort to shed light on these challenges, let us expand the conversation about diabetes treatment from focusing only on what medications a patient takes to also addressing what self-management education needs the patient has and how best to

meet them. This is what Mike Golic, Aiden Dine, and Dont'a Hightower's mother all need to help them make the everyday decisions that will help prevent the complications of diabetes and improve their quality of life. We will begin by setting up a framework for looking at the benefits of DSME.

### Decision-Aid Framework

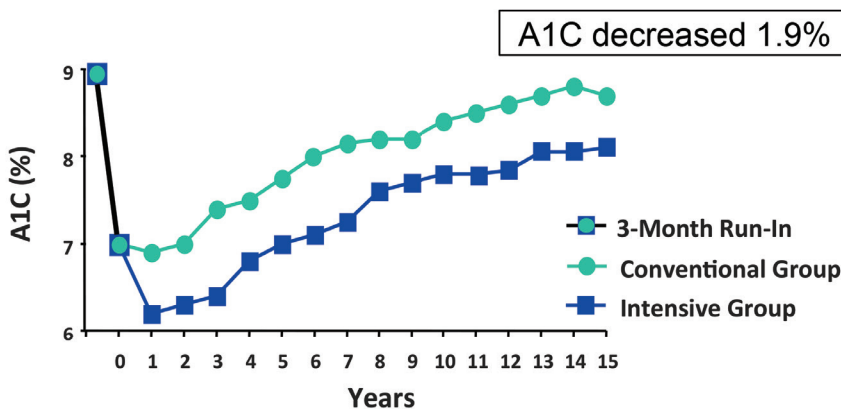
Every January, ADA publishes an update to the Standards guidelines (9). A remarkable group of experts and staff help to move very complex information to a place of greater clarity through this effort, which includes developing tools such as an algorithm for selecting medications for type 2 diabetes (9,10). This medication algorithm includes a five-point rating of each medication that summarizes its benefits and considerations for its use. The algorithm and its ratings serve as a decision aid to help providers or educators work with patients to select the most appropriate medications for their needs. What if there was a similar decision aid about the benefits of diabetes education? Could we clarify the complex details for this topic as well?

### Benefits of DSME

I will use the medication decision-aid framework to address the question, "If DSME were a pill, would you prescribe it?" We will examine DSME with regard to the five rating criteria: efficacy, hypoglycemia risk, weight, side effects, and costs. This will reveal the level of benefit of each of these factors. You may have a different way of looking at each factor and rating, but let me attempt to summarize the benefits in a clear, concise way to answer this question.

#### Efficacy

To answer the question from a treatment perspective, let us first discuss the question of efficacy, specifically the impact of DSME on A1C. The medications algorithm provides scores of high, moderate, or low for each medication; to receive a high efficacy score, the medication must lower A1C by >1%.



■ FIGURE 1. A1C reduction during UKPDS 3-month run-in period, during which patients had monthly clinic visits with a dietitian and physician (11).

Now let's look at three different studies on the A1C effects of DSME. First, a recently published systematic review conducted by the American Association of Diabetes Educators reported on 22 randomized clinical trials showing an average A1C reduction of 1.1% when both group and one-on-one education were provided to each individual (11). That is quite impressive. Second, 9,000 patients in the ADA-recognized education programs had an average A1C reduction of 1.3% (J.E. Condon, unpublished observations). This was calculated from patients in the ADA Education Recognition Program database who had pre- and post-program A1C values. Third, many people do not realize that the >5,000 patients in the U.K. Prospective Diabetes Study (UKPDS) had an average A1C reduction of 1.9% during the study's run-in period (12). Figure 1 shows the decrease in A1C over the 3-month run-in period. Each month, the patients had a visit with a dietitian and a physician. This shows the dramatic impact of MNT as first-line therapy for type 2 diabetes at the time of diagnosis. On the basis of these three studies, I would rate the efficacy of DSME in terms of A1C lowering as high.

#### Hypoglycemia Risk

I found no research documenting any risk of hypoglycemia from DSME. Additionally, DSME focuses on the causes, prevention, and treatment

of hypoglycemia (13). Therefore, I would give DSME a low rating for hypoglycemia risk.

#### Weight

For many patients, weight change is the deciding factor when selecting a medication. How does DSME rate in terms of a weight benefit? The Look AHEAD (Action for Health in Diabetes) study showed us that weight loss is achievable and sustainable through lifestyle intervention (14,15). At the end of year 1 of the study, there was a mean loss in body weight of 8.7%. The 8-year data from Look AHEAD showed a sustained 4.7% loss in body weight.

Many people believe that weight gain inevitably occurs when insulin is initiated. However, a randomized controlled trial of patients with type 2 diabetes who were starting insulin demonstrated that nutrition education can mitigate potential weight gain (16). In this study, members of the control group did gain an average 4.6 kg (11.12 lb). However, those who participated in a nutrition education program had a slight decrease in weight of 0.6 kg (1.32 lb).

Although I acknowledge the successes evident in these studies, I also recognize that the ADA nutrition recommendations state that both weight loss and weight maintenance are important goals and that one can achieve glycemic control with weight maintenance (17,18). Therefore, I

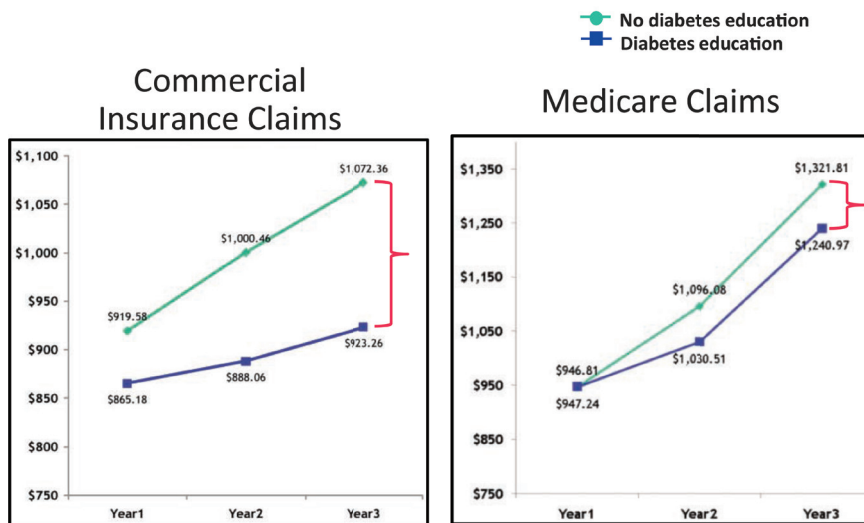


FIGURE 2. Cost savings associated with diabetes education (22).

would rate the weight benefit of DSME as neutral to loss.

Side Effects

Because there is no equivalent to a black box side effect warning for education, I would rate DSME as having no side effects. In fact, MNT can decrease side effects if someone has a food intolerance or allergy. It can also decrease blood pressure, lower cholesterol, and improve overall health through improved food choices.

Costs

It is difficult to compare the price of a medication to the cost of education. It will depend on which medications are used for comparison, given the wide variation in drug costs. Also, some people may think that education costs more because there is no reimbursement or coverage for its provision. That is not true. Medicare covers DSME and MNT (19,20), and many commercial insurance companies follow Medicare coverage policies.

That being said, an important benefit of DSME is the cost savings associated with education. In a retrospective study examining the medical records of >33,000 patients (21), average annual health care costs were found to be 39% lower for patients who received any educational visit than for those who had no such visits (\$6,244 vs. \$10,258). Another

study that looked at 3-year claims data (22) also found lower health care costs for people who received diabetes education. This was shown to be true for both those with commercial insurance and those with Medicare (Fig. 2). Notably, the cost gap between those who did and did not receive diabetes education widened in each successive year. Given this evidence, I would rate DSME costs as low, noting that there are also cost savings associated with DSME.

Psychosocial Factors

Psychosocial benefits are another factor to consider when evaluating the

value of diabetes education. DSME reduces diabetes distress (23). Distress encompasses the often-hidden emotional burdens, stress, and worries that are part of managing a demanding, progressive, chronic disease such as diabetes. Distress influences the daily self-management decisions that people with diabetes must make. In the study by Fisher et al. (23), two-thirds of people with diabetes distress experienced significant improvement after education intervention.

Additionally, DSME:

- Increases or improves quality of life, self-efficacy, empowerment, healthy coping, knowledge, self-care behaviors, adherence to a food plan, healthier food choices, increased physical activity, and use of glucose monitoring data
- Reduces blood pressure and lipids, problems managing diabetes, the incidence of acute complications, and the risk of long-term complications.

Thus, I would give DSME a high rating for psychosocial benefits.

Final Ratings Scorecard

The final ratings scorecard for DSME is impressive and confirms the benefits and value of DSME, especially when compared to that of the commonly used diabetes medication met-

| Scorecard: DSME vs Metformin |                 |              |
|------------------------------|-----------------|--------------|
| Criteria                     | Benefits Rating |              |
|                              | DSME            | Metformin    |
| Efficacy                     | High            | High         |
| Hypoglycemia risk            | Low             | Low          |
| Weight                       | Neutral/Loss    | Neutral/Loss |
| Side effects                 | None            | GI           |
| Cost                         | Low/Savings     | Low          |
| Psychosocial benefits        | High            | N/A          |

FIGURE 3. Head-to-head comparison of the benefits of DSME vs. metformin (metformin data are from refs. 9 and 10). GI, gastrointestinal.

## Diabetes Self-management Education and Support for Adults with Type 2 Diabetes: ALGORITHM of CARE

ADA Standards of Medical Care in Diabetes recommends all patients be assessed and referred for:



### FOUR CRITICAL TIMES TO ASSESS, PROVIDE, AND ADJUST DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT



### WHEN PRIMARY CARE PROVIDER OR SPECIALIST SHOULD CONSIDER REFERRAL:

- Newly diagnosed. All newly diagnosed individuals with type 2 diabetes should receive DSME/S
- Ensure that both nutrition and emotional health are appropriately addressed in education or make separate referrals

- Needs review of knowledge, skills, and behaviors
- Long-standing diabetes with limited prior education
- Change in medication, activity, or nutritional intake
- HbA<sub>1c</sub> out of target
- Maintain positive health outcomes
- Unexplained hypoglycemia or hyperglycemia
- Planning pregnancy or pregnant
- For support to attain or sustain behavior change(s)
- Weight or other nutrition concerns
- New life situations and competing demands

#### CHANGE IN:

- Health conditions such as renal disease and stroke, need for steroid or complicated medication regimen
- Physical limitations such as visual impairment, dexterity issues, movement restrictions
- Emotional factors such as anxiety and clinical depression
- Basic living needs such as access to food, financial limitations

#### CHANGE IN:

- Living situation such as inpatient or outpatient rehabilitation or now living alone
- Medical care team
- Insurance coverage that results in treatment change
- Age-related changes affecting cognition, self-care, etc.



■ **FIGURE 4.** Recommendations for when to refer patients for DSME (13).

formin. The head-to-head comparison of DSME and metformin shown in Fig. 3 shows that both have a high efficacy rating (note that metformin's efficacy is as initial medication therapy); hypoglycemia risk is low for both; weight effects are rated neutral to loss for both; the side effects comparison shows none with DSME and possibly some with metformin; costs are low with both (yet DSME is associated with cost savings from decreased hospitalizations and health care costs over time). A key difference in the two ratings is the high psychosocial benefit of DSME and the related additional benefits previously mentioned.

### DSME Position Statement

We have now given DSME outstanding benefit ratings and have noted

that there is very low utilization of this important aspect of diabetes care. Contributing to the low utilization has been a lack of clarity about when DSME should be provided and what is included in DSME.

As the previous data showed, very few people with diabetes receive diabetes education within the first year after their diagnosis. DSME is more likely to occur in later years, and that may be when their A1C is high, complications have developed, and insulin is being started. This seems like crisis intervention to me. For many years, there has been no clear guidance regarding the most appropriate times to refer people with diabetes for education or about what types of diabetes education are needed at different times. This lack

of guidance has created barriers to referral and access.

To help remove these barriers and provide guidance on these issues, ADA established a collaborative workgroup with three other national organizations (the American Association of Diabetes Educators, the Academy of Nutrition and Dietetics, and the National Diabetes Education Program) to write a joint Position Statement on DSME and DSMS (13).

### DSME Referral: When and What

The algorithm of care included in this joint Position Statement identifies four critical times at which to assess, provide, and adjust DSME: at diagnosis, annually, when complicating factors occur, and when transitions in care occur (Fig. 4). These time points

## Diabetes Self-management Education and Support for Adults with Type 2 Diabetes: ALGORITHM ACTION STEPS

Four critical times to assess, provide, and adjust diabetes self-management education and support

| AT DIAGNOSIS  | ANNUAL ASSESSMENT OF EDUCATION, NUTRITION, AND EMOTIONAL NEEDS   | WHEN NEW COMPLICATING FACTORS INFLUENCE SELF-MANAGEMENT   | WHEN TRANSITIONS IN CARE OCCUR  |
|---|--|---|---|
| <b>PRIMARY CARE PROVIDER/ENDOCRINOLOGIST/CLINICAL CARE TEAM: AREAS OF FOCUS AND ACTION STEPS</b>  |  |   |   |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> Answer questions and provide emotional support regarding diagnosis</li> <li><input type="checkbox"/> Provide overview of treatment and treatment goals</li> <li><input type="checkbox"/> Teach survival skills to address immediate requirements (safe use of medication, hypoglycemia treatment if needed, introduction of eating guidelines)</li> <li><input type="checkbox"/> Identify and discuss resources for education and ongoing support</li> <li><input type="checkbox"/> Make referral for DSME/S and medical nutrition therapy (MNT)</li> </ul>   | <ul style="list-style-type: none"> <li><input type="checkbox"/> Assess all areas of self-management</li> <li><input type="checkbox"/> Review problem-solving skills</li> <li><input type="checkbox"/> Identify strengths and challenges of living with diabetes</li> </ul>   | <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify presence of factors that affect diabetes self-management and attain treatment and behavioral goals</li> <li><input type="checkbox"/> Discuss impact of complications and successes with treatment and self-management</li> </ul>   | <ul style="list-style-type: none"> <li><input type="checkbox"/> Develop diabetes transition plan</li> <li><input type="checkbox"/> Communicate transition plan to new health care team members</li> <li><input type="checkbox"/> Establish DSME/S regular follow-up care</li> </ul>   |
| <b>DIABETES EDUCATION: AREAS OF FOCUS AND ACTION STEPS</b>  |  |   |   |
| <ul style="list-style-type: none"> <li>Assess cultural influences, health beliefs, current knowledge, physical limitations, family support, financial status, medical history, literacy, numeracy to determine which content to provide and how:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Medication – choices, action, titration, side effects</li> <li><input type="checkbox"/> Monitoring blood glucose – when to test, interpreting and using glucose pattern management for feedback</li> <li><input type="checkbox"/> Physical activity – safety, short-term vs. long-term goals/recommendations</li> <li><input type="checkbox"/> Preventing, detecting, and treating acute and chronic complications</li> <li><input type="checkbox"/> Nutrition – food plan, planning meals, purchasing food, preparing meals, portioning food</li> <li><input type="checkbox"/> Risk reduction – smoking cessation, foot care</li> <li><input type="checkbox"/> Developing personal strategies to address psychosocial issues and concerns</li> <li><input type="checkbox"/> Developing personal strategies to promote health and behavior change</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Review and reinforce treatment goals and self-management needs</li> <li><input type="checkbox"/> Emphasize preventing complications and promoting quality of life</li> <li><input type="checkbox"/> Discuss how to adapt diabetes treatment and self-management to new life situations and competing demands</li> <li><input type="checkbox"/> Support efforts to sustain initial behavior changes and cope with the ongoing burden of diabetes</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide support for the provision of self-care skills in an effort to delay progression of the disease and prevent new complications</li> <li><input type="checkbox"/> Provide/refer for emotional support for diabetes-related distress and depression</li> <li><input type="checkbox"/> Develop and support personal strategies for behavior change and healthy coping</li> <li><input type="checkbox"/> Develop personal strategies to accommodate sensory or physical limitation(s), adapting to new self-management demands, and promote health and behavior change</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify needed adaptations in diabetes self-management</li> <li><input type="checkbox"/> Provide support for independent self-management skills and self-efficacy</li> <li><input type="checkbox"/> Identify level of significant other involvement and facilitate education and support</li> <li><input type="checkbox"/> Assist with facing challenges affecting usual level of activity, ability to function, health benefits and feelings of well-being</li> <li><input type="checkbox"/> Maximize quality of life and emotional support for the patient (and family members)</li> <li><input type="checkbox"/> Provide education for others now involved in care</li> <li><input type="checkbox"/> Establish communication and follow-up plans with the provider, family, and others</li> </ul> |



**FIGURE 5.** Recommendations for which education topics to cover at four critical time points (13).

identify when patients' self-management knowledge, skills, behaviors, and support needs typically change and require additional intervention to ensure adequate education and the continuation of high-quality care and self-care.

The algorithm action steps detail which topics should be included in DSME at each of the four critical times, both during routine clinic visits and during DSME sessions (Fig. 5).

Providers and patients can review these figures together to determine whether patients are at one of the critical time points and, if so, to identify and focus on their DSME needs. The algorithm of care is an easy to use, practical way to engage patients in their own care and identify their education and support needs.

Both DSME and MNT require a referral from a provider, which is similar to writing a prescription, but easier because it does not require knowledge of brand names or appropriate dosing. Most health systems have a referral form or process within their electronic medical records (EMR) system.

In fact, it is recommended that decision support be provided in EMR to facilitate easy referral (24). DSME and MNT are crucial components of high-quality diabetes care (9,13). It is a disservice to our patients to not offer, recommend, and provide them when needed. Just as we know that regular provider visits and foot and eye exams are components of high-quality diabetes care, we should similarly value the benefits of DSME and MNT and include

them in EMR clinical decision support systems. Such supports should include automatic referrals at the four critical time points, thus creating an opt-out rather than an opt-in process in the EMR.

### Raise Your Voice and Be Heard

We often hear that metformin is a first-line treatment for diabetes, but I challenge you to take action to ensure that diabetes education is the true first-line of defense. There are four critical times to assess, provide, and adjust DSME, beginning with diagnosis and continuing throughout life, as self-management is a lifelong process. Let us all help to remove the barriers and champion the benefits of DSME by joining the ADA in advocating for routine referral and improved access to diabetes education

and support services. As the ADA advocacy team says, “Be seen. Be heard. Be loud!” We need your help to make this happen. You can take the first step by visiting [www.diabetes.org/advocate](http://www.diabetes.org/advocate) to sign up to become a Diabetes Advocate and receive advocacy updates and alerts. Additionally, examine your own health care system and health plans to ensure that DSME is utilized at the four critical times.

Thank you all for everything you do to further diabetes care and research. You are the key to high-quality care and a life free of the burdens of diabetes for all persons with diabetes.

## Acknowledgments

I would like to recognize and thank some special people who have provided me with a lot of support over the years to do what I believe in and have helped to shape my ideas. First are my fellow principal officers Robin Richardson, Des Schatz, and Lorrie Welker Liang. The four of us work closely with ADA Chief Executive Officer Kevin Hagan and the ADA Board of Directors, as well as the excellent staff of the Association. Thank you for all you do on behalf of the ADA mission and for being my special colleagues. Before me in my position were dedicated professionals who blazed trails for the team approach to diabetes care. I thank them for their dedication, support, and friendship leading up to my year as President and continuing now in my presidency year. I also want to thank my colleagues and the patients I have worked with in various professional positions, as well as the many others whom I have worked alongside in volunteer positions. You have taught me a lot about diabetes, life, and the need to translate the complex into clarity. Additionally, I want to thank my family. They provide me the home support to do what I do in my volunteer and professional activities. They all take me on grand adventures in life and have been on this adventure with me in diabetes.

## Duality of Interest

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

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