

The Diabetes Educator and the Diabetes Self-management Education Engagement

The 2015 National Practice Survey

Purpose

The National Practice Study (NPS) is conducted biannually to assess current diabetes education practices in the United States with the goal of understanding current trends in the work in which diabetes educators engage.

Methods

The 2015 NPS contained 54 questions about the individuals providing diabetes education, people with diabetes participating in education, and programs providing the education. The survey was sent electronically to approximately 21 975 people who were members of the American Association of Diabetes Educators (AADE) or who were Certified Diabetes Educators with the National Certification Board for Diabetes Educators but were not currently AADE members. In addition, both the AADE and the National Certification Board for Diabetes Educators promoted participation in the NPS via social media. The combination of efforts resulted in completion of the survey by 4855 respondents. Testing was completed with a significance level of 0.05 or 95% confidence.

Results

Diabetes educators continue to represent a diverse group of health care professionals—nurses (50%), dietitians (35%), pharmacists (6%), and others (6%). By far, the most commonly held credential for the specialty continues

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to be the Certified Diabetes Educator (86%), with only 5% of survey respondents indicating that they held the Board Certified–Advanced Diabetes Management credential. Diabetes educators are working with individuals across the diabetes continuum, as well as with people who do not have diabetes but have other chronic conditions. The data demonstrate that much of the diabetes educator’s work with people with diabetes is beyond the first year of diagnosis. Diabetes educators are increasingly seen to be providing a broader array of the integrated AADE7 Self-Care Behaviors™.

Conclusions

The specialty of diabetes educator continues to be populated by a professionally diverse workforce, meeting the needs of people across a wide spectrum. Diabetes educators can be found providing services in primary prevention of diabetes, education and management for those diagnosed with diabetes, prevention of secondary complications, and more complex management of diabetes and its secondary complications. While diabetes educators were found to work with those newly diagnosed with diabetes, they continue to engage with people with diabetes at various times other than the year that they were diagnosed. There are still issues with participant readiness, as evidenced by program completion rates. Nonetheless, diabetes educators are increasingly seen to be providing the integrated engagement that is needed to better ensure that people with diabetes attain and maintain competency in self-management skills.



Diabetes is a constellation of conditions resulting in an inadequate or absent regulation of circulating levels of glucose in the body. It is a major cause of morbidity and mortality, currently estimated to affect upward of 29.1 million Americans, which is 9.3% of the US population.¹ The financial impact was estimated in 2012 to be \$245 billion, which includes direct medical expenses and the costs resulting from reduced productivity.² With both the numbers of people affected by diabetes and its costs continuing to increase,³ the need to equip people with self-management skills to optimize their health is evermore pressing.⁴

The importance of diabetes self-management education (DSME) as a strategy to educate and engage people with diabetes in the self-management required for optimal health outcomes is understood by diabetes educators, primary health care providers, and other stakeholders. DSME is an intervention that has the potential to achieve the triple aims of health care⁵: increasing patient satisfaction, improving clinical outcomes, and reducing overall costs.⁶⁻⁸ Nonetheless, participation in DSME by people with diabetes is lower than desired.^{9,10}

Currently, there is significant flux in health care delivery and systems in the United States. The attention to improving quality measures makes it all the more critical to monitor the varied roles of the diabetes educator. The 2015 National Practice Survey (NPS) is an attempt to provide an overview of the work of the diabetes educator and the field of DSME. The 2015 NPS is the seventh such survey conducted since 2005; an innovation of this year’s survey was to partner with the National Certification Board for Diabetes Educators (NCBDE) in an effort to also include responses from diabetes educators who are not currently members of the American Association of Diabetes Educators (AADE).

This article presents the results of the 2015 NPS to provide a snapshot description of the current practice of diabetes education in the United States, including mode of delivery, characteristics of the programs and staff, practice setting, and an assessment of programmatic components. This report is intended to provide insight about current practice that can be used to understand how diabetes educators and diabetes education may be best positioned to dovetail with trends in health care.

Methods

A subcommittee derived from the AADE Research Committee and Professional Practice Committee reviewed the 2012 NPS, oversaw the revision resulting in the 2015 NPS, and were involved in the decision to expand the population to whom the 2015 NPS was sent. Efforts were made to maintain questions from previous surveys to allow for year-to-year comparisons. However, when necessary, ranges were adjusted to fully capture the work being done. In addition, several questions were added to provide insight about community practices, as they might contrast with studies conducted as clinical trial. As in the 2012 NPS,¹¹ the questions in the 2015 survey instrument were organized into 4 sections: “About You” (roles and

workplace settings of diabetes educations), “About Your Patients” (the people engaging in DSME), “About Your Program” (characteristics of the DSME program), and “About Your Education Program and Data Collected” (services provided in addition to DSME, quality improvement efforts, and data collection).

The 2015 NPS was hosted online and conducted during February and March 2015. An electronic invitation to participate was sent to 21 975 AADE members and NCBDE Certified Diabetes Educators (CDEs) with 1583 e-mails returned as undeliverable. Because there is some overlap between AADE members and NCBDE CDEs, care was taken to ensure that every one received only a single invitation. All of those who had previously indicated that they did not want to receive e-mail contact from the AADE were not included in the outreach to participate in this survey. A total of 4855 respondents either completed or partially completed the survey, resulting in a 23.8% response rate. Although the return rate was slightly less than that of the 2012 survey (25%), the sample size is the largest since 2005.

The AADE engaged the market research services of Perception Solutions, Inc (Aurora, Illinois) for graphic design, web enablement, and analysis of the results. Using the sample size of 4855 completed surveys, Perception Solutions, Inc determined that there was a 95% confidence level that the responses to the questions were accurate within $\pm 5\%$. Descriptive statistics were used to analyze survey data (frequencies, percentages, means, standard deviations, and medians, when appropriate).

Results

DSME Providers: Roles and Workplace

As in the past, the majority of survey participants in 2015 identified their discipline as nurse (50%), dietitian (35%), or pharmacist (6%); those specifying “other” were most commonly advanced practice nurses or nurse practitioners (Figure 1). Although the proportion in any one group was small, the category of “other” includes a wide range of health care providers whose patient population may often include those with diabetes (eg, audiologists, dental hygienists, optometrists, podiatrists), as well as those from the growing list of health care specialties that are directly providing DSME (eg, exercise physiologists, mental health professionals, and physician assistants). Overall, 86% of all respondents reported holding the CDE credential, with about 5% identified holding the

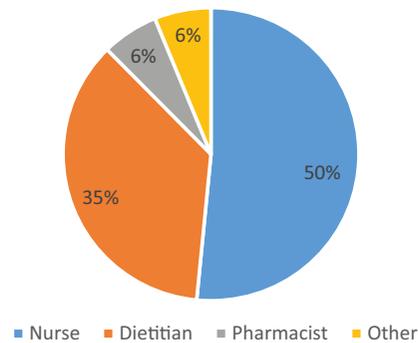


Figure 1. Respondents by discipline.

Table 1

Disciplines and CDE/BC-ADM Credentials of 2015 National Practice Survey Participants (in Percentages).

| Discipline | Respondents | Has CDE Credential | Has BC-ADM Credential |
|------------|-------------|--------------------|-----------------------|
| Nurse | 50.3 | 87 | 4 |
| Dietitian | 35.1 | 91 | 2 |
| Pharmacist | 6.1 | 73 | 11 |
| Other | 6.2 | 76 | 10 |
| All | | 86 | 5 |

Abbreviations: BC-ADM, Board Certified–Advanced Diabetes Management; CDE, Certified Diabetes Educator.

Board Certified–Advanced Diabetes Management credential. Nineteen percent of those holding the Board Certified–Advanced Diabetes Management credential also hold the CDE credential. Table 1 shows the proportion of respondents holding each of these credentials by discipline.

Full-time employment was reported by 75% of respondents, with a little more than half (55%) indicating that 76% to 100% of their work time was devoted to diabetes education. The weighted average estimate of the number of persons with diabetes seen or counseled in a year was 246, with 50% of respondents reporting seeing ≥ 200 per year. In addition, fully 36% reported also volunteering time to provide diabetes education. In terms of oversight, 28% of respondents indicated that they supervise others providing DSME or diabetes self-management support, with 37% indicating that their work includes an element

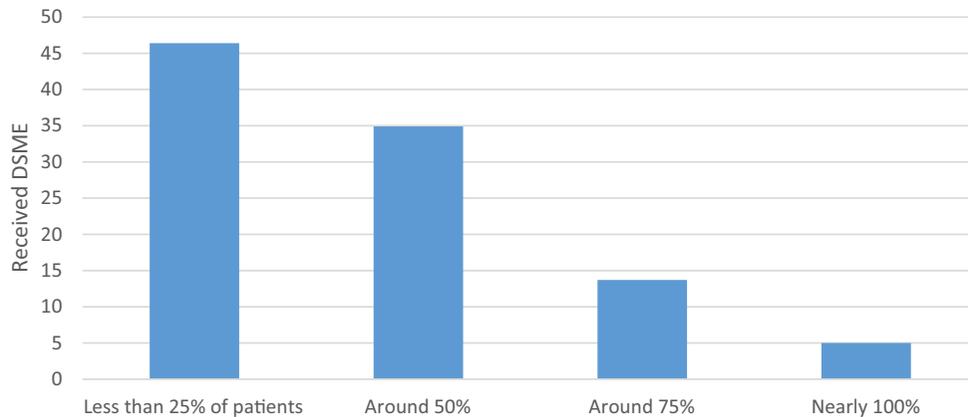


Figure 2. Percentage of people with diabetes who received diabetes self-management education (DSME) within 1 year of diagnosis.

of diabetes care team oversight. This appears to be an increase over the proportion reporting an element of supervisory activity (29%) in 2012.

It seems that the work of the diabetes educator increasingly covers the broad continuum that is diabetes care and possibly beyond. While in 2012, 55% of respondents indicated that 76% to 100% of their time was devoted to diabetes education, this was true for only 38% of respondents in the current NPS. The majority of respondents reported provision of self-management education to those with prediabetes (81%) and chronic conditions other than diabetes (78%), as well as for weight management in the absence of diabetes (53%).

Practice setting appears to have remained consistent with previous years, with the largest proportion of respondents indicating that the setting in which they provide DSME was in a hospital-outpatient / clinic (38.1%), followed by hospital-inpatient (15.3%) and private practice / physician office (13.1%). The decline in respondents reporting a community-based organization setting (6.9%) appears to be trending downward from a high of 12.9% in 2008.

The most common response to the question about the amount of time per week spent recording patient documentation, including assessment and goals setting, continues to be “more than 4 hours,” which was reported by 53% in 2012 and 49% in the current NPS.

In terms of the number of locations that diabetes educators reported working in, the majority indicated that they work in a single location (59%), of which 15% indicated that the work from that location was augmented by

technology (eg, phone or e-mail). The number working in >1 location (41%) appears to be holding steady at or about the 45% who reported doing so in 2012.

People Participating in DSME

The most common diabetes diagnosis for people participating in respondents’ programs was type 2 diabetes (70%), followed by type 1 diabetes (14%), with only 6.4% diagnosed with gestational diabetes.

It does not appear that most people participate in DSME within the year of their diagnosis (Figure 2). Regarding the percentage of people starting DSME within this time frame, 46% of respondents indicated that $\leq 25\%$ of patients had begun DSME when first diagnosed. Conversely, only 14% of respondents estimated that at least 75% of their patients had begun DSME within the year of their diagnosis. Both these estimates are nearly identical to those from the 2012 NPS (47% and 16%, respectively). In terms of program completion, only 27% of respondents indicated that more than three-quarters of those who enroll complete their program (Figure 3).

Estimates of the breakdown of the populations served by the program in which the respondents work continue to show that the 3 most common groups were Caucasian/White (52.8%), African American (20%), and Latino/Hispanic (14%). The primary language spoken by program participants was English (86%), followed by Spanish (11%). In terms of educational status, the proportion of participants with a high school or GED degree

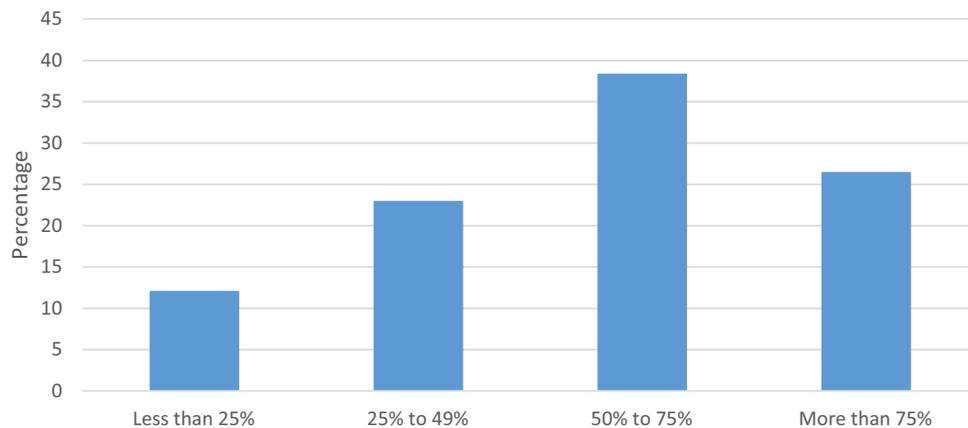


Figure 3. Proportion of patients who enroll in a diabetes self-management education program that complete the program.

(61%), some college (17%), or some high school (13%) was nearly identical to the proportions reported in 2012 (61%, 16%, 13%, respectively).

DSME Programs: Characteristics and Delivery

As in past surveys, the majority (73%) of DSME programs were characterized by their longevity, having been in operation for ≥ 5 years. Similarly, the most commonly employed types of personnel in DSME programs continue to be dietitians (71%), nurses (63%), and administrative staff (35%). This year's responses represented a statistically significant increase in the proportion of programs engaging dietitians, when compared with the 65% reported in 2012.

The locations of DSME programs continue to be evenly split between suburban (32%) and urban (31%), followed closely by the proportion of programs in rural locations (23%). A small proportion of programs are located in Federally Qualified Health Clinics (4%), Veterans Affairs facilities (4%), and telephonic environments (4%), followed closely by the proportion of programs in the Indian Health Service (3%). The annual number of people seen in a DSME program was most commonly in the range of 101 to 300 (30%); interestingly, an equal proportion of respondents indicated that the programs in which they worked saw >1000 patients (18%) or between 0 and 100 patients (18%). The majority of programs provided service in only a single location (58%), followed distantly by 2 or 3 sites (10% and 9%,

respectively). Only 4% of respondents indicated that their program served ≥ 11 geographic locations, down from a high in 2007 of 24%.

There was a close split between respondents reporting that the DSME program in which they worked did (57%) or did not (43%) have a national certification from the American Diabetes Association (ADA) Education Recognition Program or the AADE Diabetes Education Accreditation Program. A little more than a quarter of respondents indicated that they worked in a medical home model, such as an accountable care organization or patient-centered medical home (27%). A minority of respondents (16%) indicated that they did not use registries.

The majority of respondents (77%) indicated that the program in which they worked used a written curriculum. The most commonly reported basis of the curriculum was the AADE7 Self-Care Behaviors™ (38.5%) or the ADA *Life With Diabetes* (36%); 8% indicated that they used Conversation Maps. Respondents reported ongoing (45%) or annual (32.4%) curriculum review and/or revision by program staff.

Individual (one-on-one) delivery of DSME was the most commonly reported mode of engagement (77%), followed by group delivery (57%), a combination of individual and group (39%), and remote engagement (14%). Diabetes educators reported use of a variety of tools and resources in their programs. These ranged from efforts to ensure that participants were able to grasp concepts, such as the use of interpreters (43%); account for various learning styles, as in using printed handouts

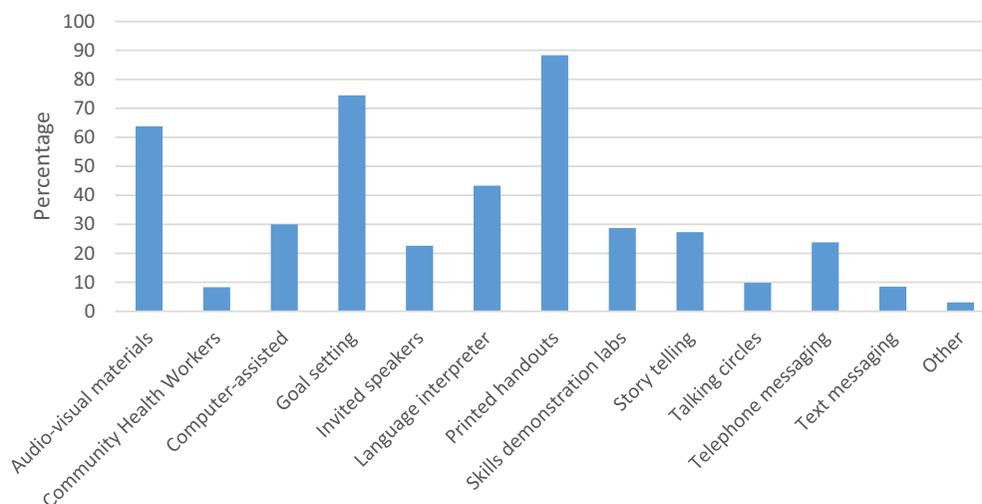


Figure 4. Resources used in diabetes self-management programs.

(88%), audiovisual materials (64%), computer-assisted presentations (30%), skills demonstration labs (29%), storytelling (27%), and invited speakers (23%); and provide methods for support through the use of telephone messaging (24%), text messaging (9%), and community health workers (8%; Figure 4). Goal setting was employed as a means of engagement in three-quarters of the programs.

The trend for improved financial status of DSME programs continued in 2015. It was most commonly reported that programs were revenue or cost neutral (54%) versus running at a loss (32%) or at a profit (14%). The percentage of programs reported to be running at a loss in 2015 continued to decrease from a high of 43% in 2007. The largest proportion included those whose participation in DSME was paid by Medicare (31%), followed by those with private insurance coverage (27%) or Medicaid (17%). Table 2 shows a breakdown of DSME program financial status by program location.

DSME Programs: Services Quality Improvement and Data Collection

At 75%, DSME was the second-most commonly reported service provided by programs in which respondents worked, surpassed only by those indicating that their programs provided services related to type 2 diabetes (80%). In addition to services for people with type 2 diabetes, services were reported to address those with prediabetes (66%), general diabetes (66%), type 1

diabetes (64%), and gestational diabetes (48%). Weight loss services and obesity counseling were offered by 56% and 53% of the programs, respectively. Insulin initiation (65%), adjustment (60%), intensification (45%), and pump initiation (42.4%) were among the frequently offered services by the respondents' programs. A variety of services focused on secondary prevention and risk reduction, including foot examinations (35%), cholesterol/lipid screening (35%), flu shots (31%), smoking cessation (29%), stress management (25%), exercise training (19%), and mental health counseling (17%). In addition, programs seem to reflect the prevalence of comorbid conditions, offering services that address cardiovascular disease (39%), renal disease (21%), cardiac rehabilitation (15%), and sleep apnea (11%). Nearly a quarter of programs provided case management (24%), and almost a third reportedly provide behavioral counseling (30%).

Among the behavioral strategies employed in the programs reported on, motivational interviewing was used by more than half of respondents (58%). Situational problem solving (36%), patient contracts (22%), conviction and confidence scaling (13%), and cognitive reframing (12%) were all approaches that were commonly reported. There was an increased proportion of respondents indicating that they collect data on each of the AADE7 Self-Care Behaviors™ (Figure 5) from the 2012 NPS. Nearly a third of respondents (29%) indicated that they collected information on all 7 behaviors.

Table 2

Financial Status of Diabetes Self-Management Education Programs in 2015 by Location (in Percentages)^a

| Location | Programs | How the Program Operated Financially in 2015 | | |
|--------------------------------|----------|--|----------------------|-----------|
| | | At a Profit | Revenue/Cost Neutral | At a Loss |
| Indian Health Service (tribal) | 2.7 | 8 | 66 | 25 |
| Rural | 22.8 | 11 | 66 | 40 |
| Suburban | 32.3 | 17 | 54 | 29 |
| Urban | 30.5 | 16 | 52 | 32 |
| Telephonic | 3.6 | 36 | 50 | 14 |
| VA | 3.8 | 11 | 77 | 12 |
| FQHC | 4.2 | 6 | 54 | 34 |
| All | | 14 | 54 | 32 |

Abbreviations: FQHC, federally qualified health center; VA, Veterans Affairs.

^aTotal selections for location, n = 3277 (some selected >1 choice).

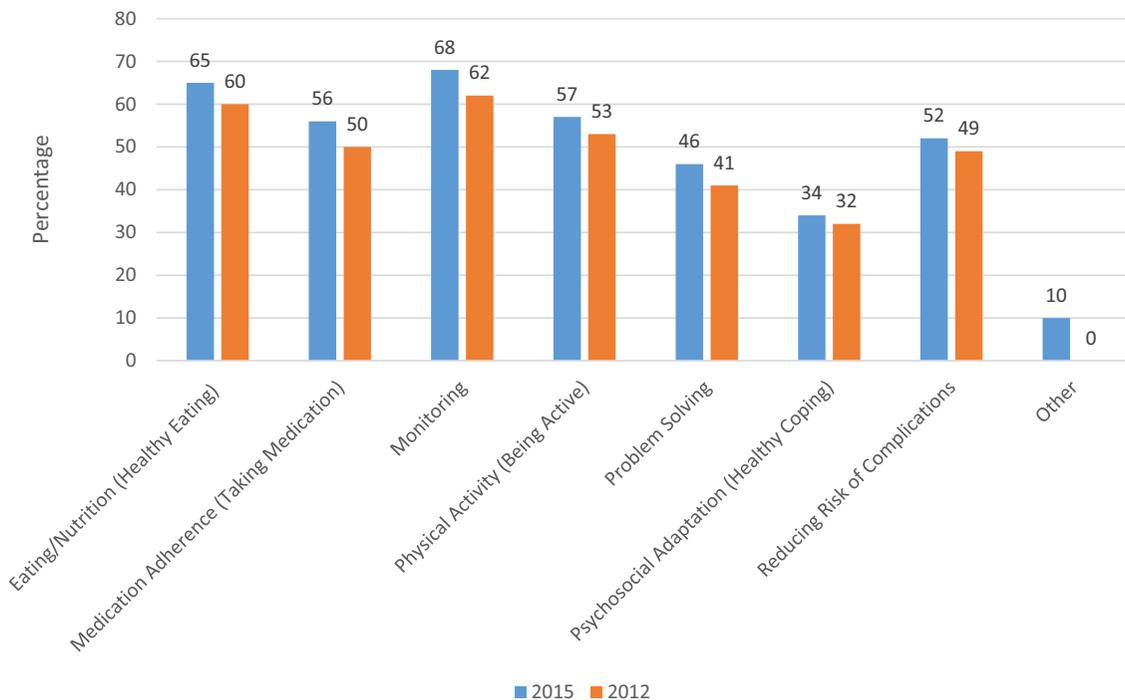


Figure 5. Comparison of reported behavioral strategy engagement in 2012 and 2015.

In terms of clinical outcomes either measured or obtained from patient or medical records, A1C was the most (83%), followed by lipid profile or total cholesterol (65%), weight (59%), and blood pressure (51%). Additionally, there was a generalized increased focus in patient outcomes, including a full 81% of respondents

reportedly collecting patient-defined goals. Other patient outcomes included inquiry about annual eye examination (52%), provider foot assessments (39%), immunization status (31%), daily foot examinations by the patients or their caretakers (28%), depression screening (26%), and oral health (25%).

Quality improvement activities continue to be a common component (84%) of program activities, along with collection of patient satisfaction surveys (71%). The availability of ready-to-use forms (47%) and an organization requiring a report of such information (42%) would appear to increase the collection of patient satisfaction data.

DSME program data collection most commonly made use of modules embedded in the hospital electronic medical record system (23%), followed somewhat surprisingly by paper and pencil (18%) or Excel spreadsheets (18%). About 15% of programs utilize software available from the AADE (AADE7™ System) or ADA (Chronicle Diabetes). Nearly half of respondents (49%) indicated that they spend >4 hours per week recording documentation, including patient assessment and educational goals.

In terms of DSME programmatics, the number of hours needed for program completion was most commonly 10 hours (47%), 4 to 9 hours (35%), or 4 hours (11%). The typical period over which programs were offered was between 1 and 3 months (49%), followed by >3 months (29%) and 1 month (22%).

Discussion

The 2015 NPS builds on previous surveys and provides insight about how the work of the diabetes educator continues to be modulated by changes in health care systems. The work of the diabetes educator includes a broader range of people at both ends of the diabetes continuum and beyond. The data in this survey showed that the most commonly reported category of topical engagement was monitoring (Figure 5), including clinical, microvascular, macrovascular, diabetes self-management support, acute complications, and psychosocial elements (Table 3).¹² This speaks to the clinical competence of the diabetes educator.

In addition to AADE members, the 2015 NPS respondents included those who hold the CDE credential and were not AADE members. While this may contribute to some differences observed between the 2012 and 2015 NPS, it likely provides a more complete picture of the work of the diabetes educator. There was 4% increase in dietitians responding to the survey, which may relate to the 11% increase in respondents indicating weight management work with people who do not have diabetes. There was a 17% decrease in the proportion of respondents

Table 3

Monitoring^a

| | |
|---------------------|----------------------------------|
| Clinical | A1C |
| | Lipids |
| | Blood pressure |
| Microvascular | Neuropathy |
| | Nephropathy |
| | Retinopathy |
| Macrovascular | Smoking |
| | Antiplatelet |
| DSMES | Nutrition |
| | Activity |
| | Support |
| | Self-Monitoring of blood glucose |
| | Medication adherence |
| Acute Complications | Hypoglycemia |
| | Diabetes ketoacidosis |
| | Hyperosmolar hyperglycemic state |
| Psychosocial | Depression |
| | Preconception planning |
| | Transitional care |

^aThis is Table 7.1 of *The Art and Science of Diabetes Self-management Education Desk Reference*.^{12(p198)}

indicating that 76% to 100% of their work time was devoted to diabetes education.

Much of the focus about diabetes education is on individuals participating in DSME when first diagnosed, in programming that is structured around the Medicare reimbursement benefit. Although the underengagement observed^{9,10} represents an important gap in diabetes care, it is important to be aware that the majority of diabetes educators in 2012 and 2015 indicated that the most of the people with whom they work were not diagnosed with diabetes in the year that they engaged in DSME (Figure 2).

The implication that most people participating in DSME at some time other than initial diagnosis confirms the breadth of DSME patient-provider engagement. There are likely increasing frameworks for these engagements, in part because of the health care system trend to replace fee-for-service with pay-for-performance reimbursement. In addition, it may result from increasing models of patient engagement outside the traditional health care framework, such as those that are part of an employer wellness benefit package. The 2015 NPS indicates that diabetes educators are in a wide range of practice settings and are engaging with a broad array of

patients. Diabetes education, like other aspects of health care, will need to meet the needs of people who will be increasingly looking for smarter care delivery and engagement models in monitoring their own status: Both of which will require engagement in data analytics. Diabetes educators are well poised to address the needs of people with diabetes by serving as a bridge between the patient and the primary care provider, as well as by serving as a trusted health professional who can help people with diabetes optimize their health and wellness.

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