

**Assessment of Barriers to the Delivery of  
Medicare Reimbursed  
Diabetes Self-Management Education  
in Rural Areas**



*South Carolina*  
**Rural Health  
Research Center**

*At the Heart of Public Health Policy*

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220 Stoneridge Drive, Ste. 204 • Columbia, SC 29210 • P: 803-251-6317 • F: 803-251-6399 •

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# **Assessment of Barriers to the Delivery of Medicare Reimbursed Diabetes Self-Management Education in Rural Areas**

## **Authors:**

M. Paige Powell, PhD  
Saundra H. Glover, PhD  
Janice C. Probst, PhD  
Sarah B. Laditka, PhD

**South Carolina Rural Health Research Center**

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## Executive Summary

Diabetes is one of the most prevalent chronic conditions among older adults in the United States, disproportionately affecting women and minorities. If untreated, diabetes can lead to severe complications or death. However, this disease can be successfully managed through exercise, proper nutrition, and as appropriate, prescription medication. Diabetes Self-Management Education (DSME) programs provide services to newly diagnosed and chronic sufferers with diabetes. The objective of this project was to explore the barriers that rural practitioners face in providing diabetes education services to Medicare beneficiaries.

Three methods were used. First, we convened an expert panel of diabetes educators from across South Carolina to define issues and concepts regarding the provision of patient education and Medicare reimbursement. Diabetes Control Program Coordinators in each of the fifty states and the District of Columbia were surveyed as the second step in the study. Finally, using a list of barriers compiled through the expert panel and through responses of DCPCs, a mail survey was sent to a random sample of ADA-recognized diabetes education facilities

### *Key Findings*

#### Rural Barriers to DSME: Expert Panel and DCPC Views

- The *expert panel* listed transportation, cultural barriers, and poverty as the highest ranked barriers in rural areas. Comments indicated that these were barriers to the provision of care and not to the use or application of the education by patients.
- Most *DCPC* respondents believed it was more difficult for rural providers to obtain ADA recognition/certification than for urban providers. ADA barriers emphasized were the costs associated with the application fee and the staffing, data collection, and reporting requirements associated with the application process.
- *DCPC* respondents reported the top barriers to the provision of DSME experienced by rural providers as: (1) shortage of designated specialists; (2) fewer resources; (3) difficulty obtaining sufficient hours and patients; and (4) high application fees for ADA recognition.

#### Rural Barriers to DSME: Survey Results

Six factors were perceived to barriers to diabetes self-management education in rural areas by more than half of respondents:

- At the facility level, about three-quarters of respondents agreed that "too little Medicare reimbursement" was a barrier in rural areas (78.0%). Relatedly, 56% agreed that Medicare does not cover enough hours of DSME. Staffing and institutional support (58.2%) and the ADA recognition process (51.6%) were also noted by more than half of respondents.

- At the patient level, poverty was most often agreed to be a barrier in rural areas (72.8%), followed by transportation (56.8%).
- Respondents from institutions that only provide care in urban areas were more likely to perceive barriers to DSME in rural areas than were actual rural providers, with differences being statistically significant in eight of 15 comparisons. Urban providers may have an exaggerated view of the difficulty of providing DSME in rural areas, which in turn may deter them from entering rural markets.

#### *Recommendations*

- The Centers for Medicare and Medicaid Services should assess whether the current certification/recognition process for reimbursable DSME poses undue challenges to rural providers and thus reduces services available to rural Medicare recipients. This assessment should estimate the costs of the recognition process including treatment, data collection, and staffing costs, and evaluate these costs against current reimbursement by both government and private payors.
- The Diabetes Control and Prevention Program of the Centers for Disease Control and Prevention should encourage state Diabetes Prevention and Control Programs to offer or coordinate technical assistance to rural providers seeking certification for DSME. Expanding the pool of providers that can be reimbursed for DSME constitutes a structural community change that increases the availability of DSME over the long term.
- The National Diabetes Education Program of the Centers for Disease Control and Prevention should expand its efforts to include rural providers and persons with diabetes. Specifically, rural organizations such as the National Organization of State Offices of Rural Health or the National Rural Health Association should be considered for membership on one or more workgroups.

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## Chapter One – Introduction

Type II Diabetes is one of the most prevalent chronic conditions among older adults, and is especially hard-hitting for women and minorities. Approximately 20% of the elderly population, or an estimated 7 million U.S. residents age 65 and older, had been diagnosed with diabetes as of the year 2000 (National Institute of Diabetes and Digestive and Kidney Diseases, 2003). Generally Type II diabetes is more prevalent in women than in men. Elderly minorities are also at higher risk for having been diagnosed with diabetes; blacks and Hispanics have prevalence rates that are nearly twice that of whites (National Institute of Diabetes and Digestive and Kidney Diseases, 2003). Whereas elderly white females have lower prevalence rates for diabetes than white males, female minorities have higher prevalence rates than male minorities, with the exception of Hispanics over the age of 74 (National Institute of Diabetes and Digestive and Kidney Diseases, 2003).

Undiagnosed, untreated or poorly managed diabetes can lead to severe complications including death. Diabetes is the sixth leading cause of death among white older adults and the fourth leading cause of death among blacks and Hispanics (Centers for Disease Control, 2001). Direct complications include retinopathy, neuropathy, and nephropathy, which could lead to blindness, amputations, and kidney disease, respectively. Many diabetics also have hypertension and heart disease. The incidence of stroke and deaths due to heart disease are two to four times higher in diabetics than in the non-diabetic population (National Institute of Diabetes and Digestive and Kidney Diseases, 2003). Additionally, coronary heart disease (CHD) is the leading cause of death among diabetics (Gavin, 2003).

Diabetes is a chronic condition that can be successfully managed. Usually, changing diet and exercise is the preferred methods of initial treatment. If attempts to control diabetes by diet

and exercise fail, then the next line of treatment is prescribing oral medication and/or insulin. Successful self-management of diabetes can help prevent diabetes-related complications from developing. Diabetes self-management education (DSME) plays a major role in assisting diabetics with successfully controlling diabetes. Self-management education programs teach diabetics how to monitor their blood glucose levels, about proper nutrition, diet and exercise, insulin treatment plans for insulin dependent diabetics, and provide motivation for using the self-management skills outside of the educational setting (Health Care Financing Administration, 2001). Few studies have documented the health outcomes of persons who receive diabetes education, but studies that have examined this area have found that the programs often result in higher levels of knowledge regarding the effects of diet and medication on the disease, greater glycemic control, increases in physical activity, and greater weight loss (Carter, Nash, & Ridgeway, 2002; Rettig, Shrauger, Recker, Gallagher, & Wiltse, 1986; Schrock, 1998).

### **Medicare Provision of Diabetes Self-Management Education**

To aid in the management of this disease, the Balanced Budget Act of 1997 provided expanded Medicare funding for diabetes self-management education. Previously, Medicare reimbursement was only provided if the educational services were administered in an outpatient hospital setting. The purpose of these new reimbursement criteria was to expand access to diabetes education services. The education programs were designed to provide patients "with the knowledge and skills needed to care for themselves, manage diabetic crises and make lifestyle changes to manage the disease successfully (Health Care Financing Administration, 2000)."

Reimbursement requirements may affect the accessibility of diabetes education services in rural areas. For instance, Medicare will not provide reimbursement if the recipient is receiving care at a rural health clinic or federally qualified health center (Department of Health



and Human Services, Health Care Financing Administration (HCFA), 2001). Additionally, in order to receive reimbursement, providers must meet a stringent set of quality standards that may exceed the limited resources of a rural practitioner (Messing et al., 2001). However, no studies to date have examined if these requirements have had a greater impact on rural practitioners.

The new regulations allow for up to ten hours of education during the first year, and two hours of education each year thereafter. Nine of the ten hours in the first year must be provided in a group setting. To ensure that quality standards are met, Medicare only reimburses those diabetes education centers that have obtained status as American Diabetes Association (ADA) recognized Diabetes Education programs.

The application fee for ADA recognition is currently \$1,050 per main site, an increase from the prior \$850, which went into effect on July 1, 2003. The additional site application fee remained \$100 (American Diabetes Association, 2003). To become a recognized program by the American Diabetes Association, diabetes education centers must meet the minimal standards outlined in the National Standards for Diabetes Self-Management Education. These are available in detail at <http://care.diabetesjournals.org/cgi/reprint/23/5/682.pdf> (American Diabetes Association, 2003). The ADA recognition process also requires that facilities that are in the application stage begin providing education to clients and collecting organizational data (mission, goals, advisory board, employee qualifications, etc.) and client data (disease process and treatment, medications, exercise and diet plan, monitoring blood glucose, etc.) for at least 20 participants during a six-month period prior to approval. During this time, the facilities must support this education without reimbursement. In April 2003, 2,374 Diabetes Education Centers were listed as recognized facilities on the American Diabetes Association website. Some of these centers included juvenile and gestational diabetes education centers, as well as adult

programs, although the adult programs are most likely the only ones that provide education to Medicare beneficiaries.

### **Study Purpose and Methods**

The objective of this project was to explore barriers rural practitioners face in providing diabetes education services to Medicare beneficiaries. Three methods were used to explore this issue. First, we convened an expert panel of diabetes educators from across South Carolina to define issues and concepts regarding the provision of patient education and Medicare reimbursement. The panel members stressed the importance of state-level Diabetes Control Program Coordinators (DCPC), funded by the Centers for Disease Control and Prevention, in assisting with the ADA recognition process, and unanimously recommended that the scope of the study be expanded to include a survey of DCPCs. Accordingly, Diabetes Control Program Coordinators in each of the fifty states and the District of Columbia were surveyed as the second step in the study. Finally, using a list of barriers compiled through the expert panel and through responses of DCPCs, a mail survey was sent to a random sample of ADA-recognized diabetes education facilities. Findings from each of these discovery methods are provided in the chapters that follow.

## **Chapter Two – Voices from the Field: Open Discussion of Barriers to Diabetes Education among Medicare Patients**

### **Process**

The expert panel was an extended discussion format, intended to elicit qualitative data about the daily work of diabetes educators and how their tasks are affected in a rural setting. Additional details about the process of recruitment, structured discussion, and analysis are presented in Appendix A.

Six diabetes educators from Columbia, South Carolina and surrounding areas participated in an expert panel meeting on barriers to providing diabetes self-management education to Medicare beneficiaries. Five of the six participants had experience providing diabetes self-management education in rural areas. The expert panel members were asked about their experience with the ADA recognition process, any problems they have encountered with the recognition process, general barriers that they faced in providing care to Medicare beneficiaries, and rural-specific barriers to providing care to Medicare patients. After the barriers in rural and urban areas were listed, respondents assessed the relative importance of the listed barriers using a multi-voting technique. The multi-voting technique allowed each respondent to distribute five votes across barriers, or to assign more than one vote to a barrier that they believe to be particularly important. The number of votes placed by each barrier was used to rank the barriers in order of importance. The process was repeated for rural barriers. The full list of barriers is available in Appendix A (Tables A-1 and A-2).

## **Findings**

### *Barriers to Providing Diabetes Education to Rural Medicare Beneficiaries*

Specific rural barriers to the delivery of DSME included patient characteristics such as lack of transportation (6 votes), poverty (3 votes), access to food, supplies, medicine and doctors (4 votes), and cultural barriers (4 votes). Many rural elders preferred not to or were unable to make multiple trips from their homes to the diabetes education center. One expert noted that a poor elder may “choose to pay the heating bill rather than obtain medicine.” Poverty also affects medication compliance and food and nutrition activities. “Hot dogs are cheaper than turkey,” another expert explained. Also, the degree to which issues are interrelated was emphasized. Poverty was described as a “mindset,” rather than an economic circumstance. Patient level barriers create problems with the delivery of care by interrupting the continuity of care and requiring diabetes educators to review some points that had been discussed in previous sessions.

Patient access issues in rural areas were also discussed in detail. Many of the diabetes educators noted that access to physicians was a problem for rural beneficiaries, but also discussed a lack of access to good grocery and pharmacy stores. Small rural groceries were seen as having few healthy food options, and pharmacies in isolated areas were perceived as “gouging” prices since elderly patients are reluctant to drive long distances and may not realize that they could obtain cheaper supplies in urban pharmacies.

### *Facility Level Barriers in Rural and Urban Areas*

The facility level barriers described below were reported for facilities in rural and urban areas. Respondents in the panel discussion did not distinguish between the level of severity of these barriers in rural and urban areas. The most severe barrier to providing diabetes education to Medicare beneficiaries was inadequate Medicare reimbursement (11 votes). One expert

stated, "It's hard to bill according to government regulations: it doesn't match the need of elderly patients." The panel mentioned that only one hour of education for Medicare beneficiaries could be one-on-one; the remaining nine hours had to be provided during group sessions. Although one expert thought that older adults learned better in groups, all experts agreed that the number of hours was not sufficient because older adults seemed to require more time to learn the self-management skills than younger patients. In addition, only one hour of education could be provided per session. Staffing and financing problems during the six-month period during which services are provided without reimbursement and after ADA recognition was the next most commonly stated barrier (9 votes). Several experts noted that if hospitals were willing to provide staff assistance, it would ease the educators' task of completing the certification application.

A lack of priority from the hospitals or organizations with which the diabetes educators were affiliated was tied as the third highest ranked barrier (4 votes). The panel believed that diabetes education did not provide a large payoff for the sponsoring hospital. As one member stated, "amputations pay better than education." Another member replied that education is "not on the institution's radar screen. They want the high paying procedures." Lack of space was reported as another barrier. Several panelists reported having cramped, inadequate consultation rooms. Panelists commented that individuals with Type II diabetes are generally large, which exacerbates problems associated with small consultation rooms. Panelists speculated that the lack of appropriate space was because of the lack of payoff from the diabetes education programs. Another barrier reported was physicians' reluctance to refer patients to diabetes educators (4 votes). The panel also noted some resistance by physicians to use written referrals as required by CMS. The panel perceived primary care physicians preferring not to refer patients to specialists, or even to the diabetes educators for education, for fear of losing patients.

*Patient Level Barriers in Rural and Urban Areas*

The patient level barriers described below were reported for those in rural and urban areas. We highlight differences in the severity of the barrier between rural and urban areas. The most commonly cited patient level barriers were financial: patients are unable to pay for supplies or meet their copayments (9 votes). This barrier was seen to be more severe in rural areas. Panelists noted that the patient must pay a 20% coinsurance rate for both the classes and diabetic supplies. Transportation was reported as an important barrier (6 votes). Transportation was the highest ranked problem for rural beneficiaries. Many older adults relied on their children for transportation, and could only attend when their children were not working. For older adults who do drive, classes need to end well before dusk, due to poor night vision, and not take place during high traffic times. The difficulty older drivers face was illustrated by one panel member's story of three older rural widows who drove about 30 miles to attend a diabetes education session. These women felt a great personal triumph at being able to drive so far on their own.

Fatalism or emotional acceptance (4 votes), the stigma of disease as perceived by the patient (2 votes), and literacy problems (2 votes) were also discussed as patient level barriers. Some examples of fatalism that were provided by the expert panel were patients stating, "I have 'just a touch of sugar'. It isn't serious;" or "Everyone in my family has it." One panel member had just counseled the youngest of 8 siblings, all of whom had been diagnosed with Type II Diabetes. Another expert noted that many of her patients had expressed that they "have to die of something."

*Research Recommendations*

The expert panel suggested that the investigators contact the DCPCs in each state to ask about their experiences with the ADA recognition process. This suggestion led to the telephone and email survey of the Diabetes Control Program Coordinators. A description of that portion of the study is presented in the next chapter.

**Summary**

For rural populations, transportation, cultural barriers, and poverty were the highest ranked barriers. For rural and urban facilities, perceived barriers included inadequate Medicaid reimbursement, staffing and financing costs during the period prior to ADA recognition, and inadequate support for diabetes education from the sponsoring institution.

## **Chapter Three – Survey of Diabetes Control Program Coordinators**

### **Process**

Each state has a Diabetes Control Program (DCP) and a Diabetes Control Program Coordinator (DCPC). All 50 states, the District of Columbia, and most American territories receive funding from the Centers for Disease Control and Prevention (CDC) as either core or comprehensive programs (CDC, 2003). The amount of funding and responsibilities differ with core and comprehensive capability, with an average of \$232,000 for core capability and \$800,000 for comprehensive capability (CDC, 2003). The scope of the DCPs and the roles of the DCPCs vary from state to state, as the programs are run independently at the state level.

For the study, DCPCs were asked three open-ended questions:

- 1) Do health care organizations in your state report problems with obtaining ADA recognition/certification for Medicare reimbursement?
  - a. If so, what kind of problems do they report?
- 2) Do you think that it is more difficult for rural providers to obtain ADA recognition/certification than for urban providers?
- 3) In your opinion, what are the major facility level organizational barriers to providing diabetes education to Medicare patients?

Of the 51 DCPCs contacted, 3 responded that they had no experience with the ADA recognition process. Of the remaining 48 DCPCs, 34 responded to the survey, yielding a response rate of 70.8%. The breakdown of response rates by region is shown in Table 3-1.



**Table 3-1. Response Rate by U.S. Census Region**

<b>Census Region</b>	<b>Response Rate</b>
Midwest (n = 12)	66.7%
Northeast (n = 9)	88.9%
South (n = 17)	76.5%
West (n = 13)	61.5%

## **Findings**

### *Role of the Diabetes Control Program Coordinator*

While many state DCPCs coordinate with or provide assistance to diabetes education centers in the ADA recognition process, not all do so. Some DCPCs qualified their responses by saying that they did not directly advise diabetes education centers, although many of these DCPCs were still aware of the issues in the recognition process.

### *Results for Question (1): Problems with obtaining ADA recognition/certification for Medicare reimbursement, and types of problems reported.*

When asked if “health care organizations in [their] state reported problems obtaining ADA recognition/ certification for Medicare reimbursement, 73.5% (25) of DCPCs answered “yes,” 20.6% (7), responded “no,” 2.9% (1) thought there probably were some problems, and 2.9% (1) did not respond to question 1a. (Note: this question does not distinguish between rural and urban barriers.) Four of those who answered “no” stated they had not *heard* of any problems, which could mean that there are problems that have not been reported or mentioned to the DCPCs.

The problem most often noted regarding obtaining ADA recognition was that the recognition process is expensive. Approximately half of DCPCs who mentioned problems listed this barrier. At the time of the survey and the expert panel meeting, the application fee for ADA

recognition was \$850 for the main site and \$100 per subsequent site. Many of the DCPCs mentioned that this fee was expected to increase within the next year.<sup>1</sup>

The ADA application process was also described as "cumbersome." Hiring appropriate staff specialists including Certified Diabetes Educators (CDEs) was listed as a problem by 48% of the respondents. However, one respondent stated correctly that it was a misconception that diabetes education centers are required to hire a CDE. Registered nurses (RNs) and registered dietitians (RDs) are qualified to act as instructors with appropriate continuing education (ADA, 2003). The process was also described as labor and time intensive and costly by 40% of respondents. About 36% of respondents mentioned that the requirement that the institution treat patients without reimbursement prior to approval was burdensome. Finally, extensive reporting requirements, too much emphasis on data collection, obtaining appropriate CQI mechanisms to track patient information, and a lack of resources to add a data collection program were listed by 20% of respondents.

*Results for Question (2): A comparison of difficulties faced to obtain ADA recognition / certification between rural and urban providers.*

Most of the DCPCs (73.5%) perceived that it was more difficult for rural providers to obtain ADA recognition/certification than for urban providers. A notably smaller percentage (17.6%) perceived there were no rural/urban differences. One respondent (2.9%) reported it "probably" was more difficult for rural providers; another stated that he or she "did not know" if there are differences. Most respondents perceived that rural areas face more problems than urban areas. Of respondents who believed there were difficulties with obtaining ADA

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<sup>1</sup> In fact, as of July 1, 2003, the fee for main sites increased to \$1,050, while the fee for additional sites remained the same.

certification / recognition, 84% (21 of 25 respondents), also perceived obtaining recognition was more difficult for rural providers.

Many reasons were provided by DCPCs why it is more difficult for rural providers to obtain ADA recognition than urban providers. The most common reasons included:

- A shortage of designated specialists such as CDEs, mental health workers, and endocrinologists (8, 44.4%);
- Fewer resources (including funding) and staff, especially for non-network hospitals (7, 38.9%);
- Difficulty obtaining sufficient hours/patients for approval due to limited patient loads – ADA recognition requires treatment of at least 20 patients (5, 27.8%);
- The high application fee (2, 11.1%).
- Greater difficulty accessing rural sites (2, 11.5%)
- Requirements too demanding for rural areas (2, 11.5%)

Each of these problems is complex. The shortage of CDEs, for example, is related both to low pay scales in rural areas and to the difficulty practitioners who wish to become CDEs, such as nurses, face when attempting to acquire sufficient patient experience to qualify for the CDE exam. Lack of resources in rural areas is perceived along two dimensions: literally fewer persons, and fewer persons with the requisite leadership experience to start a certified program. Even among respondents who had no specific problems of obtaining ADA recognition/ certification for Medicare reimbursement reported to them, many thought that the process was more difficult for rural providers .

*Results for Question (3): Major facility level organizational barriers to providing diabetes education to Medicare patients.*

The facility level barriers described below were reported for all facilities, without distinguishing between rural and urban institutions. Over half (51.7%) of DCPCs responded that limited staffing, problems with scheduling, and lack of fiscal support or limited funding were major barriers to the provision of DSME. One respondent noted, “the Medicare reimbursement rate is not enough to make it worth the process if you don’t have a large volume of patients. Consequently there is a lack of administrative understanding & commitment to the process. CEOs don’t commit enough time or FTE resources for ADA recognition process and diabetes education.” Another respondent stated, “I believe that it is the lack or limited funding that creates the greatest barrier. There are many people who would like to do diabetes education, but it is difficult to convince [the] administration, if the facility will lose money.”

Medicare reimbursement was perceived as confusing and inadequate by 41.4% of DCPCs. One respondent noted that the reimbursement rates as well as the number of visits were too low. One respondent replied, “another huge barrier is the poor reimbursement rate for Medicare patients, especially in areas where Medicare members have co-pays they cannot afford and don’t have secondary insurance; in areas where group education is not an option due to small patient volume or populations not teachable in groups (such as a diverse non-English speaking population).”

Finally, a lack of administrative support in the potential sponsoring organization was noted by almost one-third of respondents (31%). As one respondent replied, “for the programs that are not making much money, the facilities are not too excited about providing education to a large population that is not going to pay their bill.” Another noted that, “overall dollars flowing

into the facility are decreased, making it extremely difficult to provide adequate staffing and resources to provide diabetes education. ADA recognition is too tough for them (the hospital program) to attain and providing non-reimbursable services is not financially feasible for facilities that are already struggling to remain solvent.”

### **Summary**

Most DCPCs believed it was more difficult for rural providers to obtain ADA recognition/certification than for urban providers. ADA barriers emphasized were the costs associated with the application fee and the staffing, data collection, and reporting requirements. The top perceived barriers for rural providers were: (1) shortage of designated specialists; (2) fewer resources; (3) difficulty obtaining sufficient hours and patients; and (4) high application fees. DCPCs in rural and urban areas reported problems with obtaining ADA recognition. Major facility level barriers reported in rural and urban areas are inadequate staffing, problems with scheduling, lack of fiscal and administrative support, and low levels of Medicare reimbursement.

## **Chapter Four – Survey of ADA-Recognized Diabetes Education Providers**

### **Process**

A survey addressing potential barriers to diabetes self-management education was mailed to approximately half of the ADA recognized diabetes education centers in the United States. (Details in Appendix A.) Of the 1200 surveyed diabetes education centers (DECs), 784 returned questionnaires. Respondents were presented with a list of 15 potential barriers, which were developed based on the expert panel and DCPC comments. For each potential barrier, respondents were asked the degree to which they agreed that it was a barrier for diabetes education “in general,” with no specific reference to rural or urban location. In a separate question, they were asked the degree to which they agreed it was a barrier for diabetes education in rural areas. To ascertain whether respondents had experience delivering care in rural settings, they were asked “Does your facility provide diabetes education in rural areas?” All affirmative responses are counted as “rural” providers; all negative responses are counted as “non-rural” providers. Therefore, a provider principally located within an urban area, but providing care to rural beneficiaries in one or more rural areas, would be considered a “rural” provider for this study’s purposes.

Of the 784 respondents, 46.2% worked for facilities that provided care in a rural area. Most respondents were either nurses (71.4%) or dietitians (20.5%; Table 4-1). The mean number of counties covered by the surveyed diabetes education centers was 4.5 (Table 4-2). The mean number of full-time non-certified diabetes educators, full-time certified diabetes educators, part-time non-certified diabetes educators, and part-time certified diabetes educators are in Table 4-2. The mean number of years the organization had been providing care was 14.2 years,

which could represent the hospital or other organizational affiliate rather than the diabetes education centers.

**Table 4-1. Respondent Characteristics**

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
Provides care to rural areas		
No	422	53.8
Yes	362	46.2
Total	784	100.0
Occupation		
Nurse	560	71.4
Dietitian	161	20.5
Other	72	9.2
Total	784	100.1

**Table 4-2. Facility Characteristics**

<b>Variable</b>	<b>Mean</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
Number of counties covered (n = 774)	4.50	7.51	0	105
Number of full-time non-certified diabetes educators	1.69	2.29	0	30
Number of part-time non-certified diabetes educators	1.88	2.15	0	20
Number of full-time certified diabetes educators (CDEs)	1.38	1.69	0	25
Number of part-time certified diabetes educators (CDEs)	1.24	1.61	0	13
Number of years organization has provided care	14.24	17.36	0	150

In the next section, survey results are presented and comparisons are drawn between the perceptions of barriers in rural areas and barriers “in general,” that is, in rural and/or urban areas.

In addition, the opinions of centers providing care in rural areas are compared to those of centers serving only urban populations.

## **Findings**

### *Barriers to Delivery of DSME for Rural Beneficiaries*

Six factors were perceived to barriers to diabetes self-management education in rural areas by more than half of respondents (Table 4-3). At the facility level, about three-quarters of respondents agreed that “too little Medicare reimbursement” was a barrier in rural areas (78.0%). Relatedly, 56% agreed that Medicare does not cover enough hours of DSME (Table 4-3, next page). Staffing and institutional support (58.2%) and the ADA recognition process (51.6%) were also noted by more than half of respondents.

At the patient level, poverty was most often agreed to be a barrier in rural areas (72.8%), followed by transportation (56.8%). Perceptions of barriers were higher for *all* patient level factors when delivering care to rural beneficiaries compared to urban beneficiaries; this will be further discussed later.

### *Barriers to Delivery of DSME for Any Beneficiary, Rural or Urban*

In addition to rural barriers, respondents were asked about barriers “in general,” not distinguishing between rural and urban. At the facility level, “Staffing/financial/institutional support” were agreed to be barriers by 58.2% of respondents. “Medicare does not cover enough hours” elicited the next highest level of agreement regarding DSME in general (55.8%). At the patient level, financial factors were the most commonly agreed upon barriers to DSME by all respondents.



**Table 4-3. Perceptions of Barriers to DSME, All Providers, by location (rural location specifically versus any location)**

(Percent who agree or strongly agree that the cited factor is a barrier for self-management education for persons with diabetes, sorted by the level of agreement for barriers to delivery of care to rural Medicare patients)

Potential barrier	Proportion seeing this as a barrier to delivery of care to rural beneficiaries		Proportion seeing this as a barrier to delivery of care "in general" (rural and urban areas)		McNemar's test p-value
	#	%	#	%	
<b>Facility level</b>					
Too little Medicare reimbursement	437	78.0	561	73.4	<0.01
Staffing/financial institutional support	328	58.2	344	44.7	<0.0001
Medicare does not cover enough hours	314	56.0	429	55.8	NS
Undergoing the ADA recognition process	289	51.6	321	41.6	<0.0001
Paying for the ADA recognition process	222	39.6	195	25.4	<0.0001
Physicians are not cooperative	149	26.6	161	20.8	NS
<b>Patient level</b>					
Financial problems/poverty	410	72.8	463	59.7	<0.001
Transportation	319	56.8	250	32.3	<0.0001
Patient functional impairments or comorbidities	257	45.6	306	39.6	<0.01
Lack of literacy and/or education	221	39.4	187	24.3	<0.0001
Fatalism/emotional acceptance	183	32.7	192	24.8	<0.01
Non-compliance with care	180	32.1	167	21.6	<0.0001
Lack of family/social support	152	27.1	197	25.4	NS
Social stigma associated with diabetes/illness	93	16.6	102	13.2	NS
Language barriers	84	15.1	92	11.9	NS

When analyzing perceptions, there is always to possibility that respondents fail to assess their community accurately. We explored the correspondence between respondent perception of barriers to the provision of DSME and the characteristics of the population served by the respondent's facility, based on counties served. We looked at six county characteristics: HPSA status, hospital beds per 100,000 population, physicians per 100,000 population, percent minority in the county population, percent Hispanic in the county population, and the percent of families

in poverty.<sup>6</sup> We compared values for these six characteristics between respondents agreeing that a barrier was present and those who did not, using  $\alpha = .01$  significance level. Population characteristics appeared to influence perceived barriers more often than did health care resources. We found that:

- Respondents agreeing that language was a barrier provided education in counties with a higher percentages of minorities (21.6% vs. 16.7%), and Hispanics (14.2% vs. 6.9%, Hispanics) than those who disagreed.
- Respondents agreeing that transportation was a barrier provided education in counties with higher percentages of minorities (21.1% vs. 15.5%) and families living in poverty (9.5% vs. 8.4%) than those who disagreed.
- Respondents agreeing that patient financial problems and poverty were barriers provided education in counties with higher percentages of families living in poverty (9.3% vs. 1.9%) than those who disagreed.
- Respondents agreeing that fatalism or emotional acceptance was a problem provided education in counties with higher percentages of families living in poverty (9.7% vs. 8.4%) than those who disagreed.
- Respondents agreeing that the social stigma that is associated with diabetes or illness was a barrier provided education in counties with higher percentages of minorities (21.6% vs. 16.3%) and families living in poverty (10.0% vs. 8.5%) than those who disagreed.
- Respondents agreeing that lack of literacy and/or education was a problem provided education in counties with higher percentages of minorities (20.7% vs. 16.2%) and families living in poverty (10.0% vs. 8.3%) than those that disagreed. Twenty-six percent of those respondents who provided care in a Health Professional Shortage Area agreed that lack of literacy and/or education was a problem compared to 15% of those who did not provide care in an HPSA ( $p=0.0096$ ).
- Respondents agreeing that lack of family or social support for patients was a barrier provided care in counties with significantly higher percentages of minorities (20.2% vs. 16.3%).

Collectively, the analysis just presented supports the notion that respondents reporting barriers were likely to be providing care in communities where barriers are present. Thus, respondent perceptions generally correspond to a more “objective” picture of their communities.

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<sup>6</sup> When a facility served multiple counties, all values except HPSA status were averaged across counties. HPSA status was dichotomized in “serves any whole county HPSA” versus none.

*Comparison: Are rural barriers perceived to be higher?*

We examined differences between rural barriers and those in other communities in two ways. Both analyses showed that barriers were perceived to be higher in rural areas.

First, perceived rural barriers were compared to barriers “in general,” across rural and urban areas, using a McNemar’s test for paired samples. This test measures if the percentage of responses citing a factor as a rural barrier is equivalent to the percentage of responses citing a factor as a general (rural and urban) barrier. Ten of the fifteen barrier comparisons were statistically significant at the  $\alpha = .05$  level (Table 4-3, above). In each instance a higher proportion of respondents agreed that the factors listed were a greater barrier in the delivery of care in rural areas rather than the delivery of care in general, regardless of location.

To explore whether perceived barriers were keeping providers from entering rural areas, we compared perceived rural barriers between providers that currently offer DSME in rural areas and those that do not (Table 4-4, next page). For eight of the 15 potential barriers, agreement that the factor was a barrier for rural providers was significantly higher among providers who did *not* serve rural areas.

Higher levels of agreement that barriers are present in rural than in urban areas, and among institutions that do not provide rural care, may have several origins. It is possible that urban respondents were located near rural areas that experience high levels of the barriers cited. It is also possible that rural institutions, or urban institutions already committed to providing care in rural areas, have psychologically adjusted to real barriers. However, it is possible that an exaggerated view of barriers to DSME in rural areas may deter urban facilities from extending services into rural communities.

**Table 4-4. Perceptions of Barriers in Rural Areas, A Comparison of Rural Providers and Urban Providers**

Factor	Provides Care in Rural Areas		Provides Care in Urban Areas Only	
	#	%	#	%
<i>Strongly Agrees or Agrees</i>				
<b>Facility level</b>				
Too little Medicare reimbursement	313	77.7	124	79.0
Medicare does not cover enough hours	224	55.3	90	57.7
Staffing/financial/institutional support	205	<b>50.5</b>	123	<b>77.9***</b>
Undergoing the ADA recognition process	195	<b>48.0</b>	94	<b>61.0**</b>
Paying for the ADA recognition process	148	<b>36.5*</b>	74	<b>48.1*</b>
Physicians are not cooperative	95	<b>23.5*</b>	54	<b>34.8**</b>
<b>Patient level</b>				
Patient financial problems/poverty	291	71.3	119	76.8
Transportation	208	<b>51.2</b>	111	<b>71.2***</b>
Patient functional impairments or comorbidities	180	44.1	77	49.7
Lack of literacy and/or education	145	<b>35.7*</b>	76	<b>49.0**</b>
Non-compliance with care	127	31.3	53	34.2
Fatalism or emotional acceptance	126	31.1	57	37.0
Language barriers	41	<b>10.2*</b>	43	<b>27.7***</b>
Lack of family/social support	119	29.2	33	21.4
Social stigma associated with diabetes/illness	54	<b>13.4*</b>	39	<b>25.2***</b>
* p ≥ .05				
** p ≤ .01				
*** p ≤ .001				

### Summary

The most prevalent facility level barriers to DSME for rural Medicare beneficiaries were: lack of reimbursement, paying for and undergoing the ADA recognition process, and institutional support. The most commonly perceived patient level barriers for rural Medicare beneficiaries were compliance with care, transportation, financial problems/poverty, fatalistic attitudes, low education, and comorbidities or other impairments. Respondent perceptions appear to reflect the characteristics of the populations they serve. Respondents were more likely to agree that barriers were present in rural areas than in urban areas. Further, non-rural providers consistently rated rural barriers more strongly than rural providers. Alternatively, present rural providers may disproportionately be located in rural areas that have fewer barriers.

## Chapter Five – Conclusions and Policy Implications

### Conclusions

The expert panel, the Diabetes Control Program Coordinator (DCPC) survey, and the Diabetes Education Center (DEC) survey all brought out several important themes regarding diabetes self-management education (DSME). Respondents in all groups emphasized problems with ADA recognition and Medicare reimbursement. Although each survey included a rural-urban comparison component, the DEC survey provided the most detail for the rural-urban barrier comparisons. The expert panel and DCPC survey underscored rural-urban differences through the use of comments obtained from open-ended questions. The most important conclusions from this study fall into three categories: rural-urban differences in barriers to DSME, ADA recognition, and Medicare reimbursement.

#### *Rural and Urban Comparisons of Perceived Barriers to DSME*

Most DCPCs believed it was more difficult for rural providers to obtain ADA recognition/certification than for urban providers. The top barriers for rural providers were: (1) shortage of designated specialists; (2) fewer resources; (3) difficulty obtaining sufficient hours and patients; and (4) high application fees. Other major barriers reported in rural areas were staffing, problems with scheduling, and lack of fiscal and administrative support.

A perception that Medicare reimbursement is both low and does not cover enough hours for adequate education was common across both urban and rural respondents, and believed to apply to both urban and rural settings. Among respondents to the DEC whose institutions provide care in rural areas, about half felt that inadequate institutional support was a barrier to

DSME. Two patient barriers to DSME perceived by respondents active in rural areas were patient poverty and transportation.

While perceived problems with Medicare payment and hours were common across all participants and settings, there were differences across respondents in perceptions of barriers to care in rural areas. Respondents from institutions that only provide care in urban areas were consistently more likely to perceive institutional and patient barriers to DSME in rural areas than were actual rural providers. At the facility level, urban providers were more likely to perceive problems for rural providers in staffing, financial, or institutional support, paying for and undergoing the ADA recognition process, and lack of cooperation among physicians than were rural providers themselves. At the patient level, language barriers, transportation, the social stigma attached with diabetes or illness and a lack of literacy and/or education were all rural barriers that were believed to be worse by urban providers than by rural providers.

It is possible that most responding rural Diabetes Education Centers were located in well-to-do rural areas that experience few patient or facility barriers to DSME, leading fewer of them to perceive barriers. However, it appears more likely that urban providers have a somewhat exaggerated view of the difficulties present when offering DSME in rural areas. This inaccurate perception can have real consequences if it leads urban institutions to avoid extending care to surrounding rural communities.

#### *ADA Recognition*

The ADA application process is perceived by the expert panel and most respondents from both surveys to be expensive and laborious, a barrier to many facilities that might otherwise apply for Medicare reimbursement for diabetes self management education. Receiving ADA recognition was perceived to be a greater barrier in rural areas than urban areas. Although CMS's

purpose in mandating ADA recognition for Medicare reimbursement was to ensure a minimum standard of quality, the standards imposed create a monopoly situation in which willing and capable providers cannot compete. This is particularly true for providers in rural areas.

The major barrier rural providers face is the cost of collecting performance data required by the recognition process. During the pre-recognition period, staff and providers must be paid, facility space is required and patients' needs must be addressed, without any reimbursement. Smaller, independent hospitals located in rural areas may be more likely to forego participating in Medicare reimbursement than larger, integrated hospital systems. Whereas larger hospitals can cover the cost of the recognition process using revenue from other programs, smaller hospitals do not have as many resources from which to draw. Multi-chain or multi-site hospitals and horizontally integrated delivery systems can also apply for more programs at a lower cost per program.

In the DCPC survey, respondents perceived that obtaining ADA recognition is more difficult for rural providers than urban providers. Several respondents from states with large rural areas believed that rural organizations could meet the existing standards with some outside assistance, i.e. staff and expert guidance. They noted that success in becoming an ADA recognized program "depends on the level of commitment and dedication by the provider." However, the reality may be that the rewards do not justify the necessary level of investment to rural hospital administrators.

One of the most important lessons concerning the ADA recognition process in rural areas was gleaned from the expert panel session and the state DCPC survey. Our expert panel's comments suggested that DCPC assistance was extremely helpful. However, not all state DCPCs coordinate with or provide assistance to diabetes education centers in the ADA

recognition process. Some DCPCs who responded to the survey, qualified their statements by saying that they did not directly advise diabetes education centers. Although they did not work directly with the recognition process, many of these DCPCs were still aware of some of the issues facing diabetes education centers in the recognition process. Therefore, it may be more difficult for facilities in those states that do not have an advising relationship with the DCPC to obtain recognition.

Rural providers face many barriers to obtaining ADA recognition, such as the absence of specialized personnel. Further, the barriers that they have in common may be more serious for rural providers than for urban. For example, although inadequate reimbursement may exist in both rural and urban areas, urban facilities can more easily cover their losses through their more profitable programs. Rural facilities are less likely to have the programs from which they subsidize losses in the provision of diabetes education. In addition, a larger, urban facility could more easily subsidize a program during the application process than a rural facility. No reimbursement is allowed during the application process.

#### *Medicare Reimbursement*

In all of the survey groups, inadequate Medicare reimbursement was one of the most common barriers listed or rated; this was true for providers in rural areas as well as in urban areas. Medicare reimbursement is perceived to be insufficient with regard to both the type of service that is reimbursable and reimbursement levels. Most providers believe that the ten hours allowed by Medicare for diabetes education is not enough time in which to counsel older beneficiaries effectively. In addition, the reimbursement rate for diabetes self-management education often does not cover the cost of providing care. Therefore, most organizations have to



either shift costs from more lucrative programs to subsidize diabetes education, or are forced to close their programs.

Complaints about the level of reimbursement have been an inherent part of the Medicare program since the introduction of prospective payment in 1983. Since the expert panel and survey populations were providers of care, it is natural that some of the discussion would focus on reimbursement issues. A thorough cost analysis of diabetes education would be useful to determine how large a role these reimbursement issues actually play.

### **Policy Implications**

The concurrence of opinions from diabetes education providers in South Carolina, Diabetes Control Program Coordinators across the United States, and diabetes education centers across the U.S. lends credence to the barriers discussed in this report. This level of agreement suggests that the problems in providing diabetes education to Medicare beneficiaries are not state or region specific, but national in scope.

Although patient level barriers to diabetes education exist in both urban and rural areas, barriers such as poverty, transportation, illiteracy, multiple co-morbidities, and mind-set, are not as easily addressed by national policies. Therefore, this report has focused on the system-wide barriers that have the potential to be corrected through national policy efforts. The results also indicate that rural providers face more challenges than urban providers. Therefore, CMS and the Office of Rural Health Policy will want to consider policies directed toward rural providers of diabetes education. Although both rural and urban providers have indicated displeasure with the level of reimbursement for diabetes education and the ADA certification process, the prevailing view is that the barriers impact rural providers to a greater extent than urban providers.

Reimbursement issues

By far the greatest barriers relate to Medicare reimbursement and the ADA recognition process. Our results combine qualitative and quantitative data to present a picture of the problems facing diabetes educators who provide Medicare services. If the perception is correct that Medicare reimbursement cannot cover the costs associated with providing education, or if Medicare does not cover enough sessions, then two things may occur. First, providers are likely to exit the market. If diabetes education centers cannot support themselves and do not have other resources, then they will be forced to stop providing care. Since rural providers face greater barriers than urban providers, rural diabetes education centers may be more likely to face this prospect than urban centers. Secondly, if Medicare does not cover enough hours, then the diabetes education will be ineffective and will not prevent many of the complications that education is meant to prevent. Therefore, the diabetes education program will not be cost-effective and may not receive further support from Congress or CMS.

The ADA recognition process, both in cost and process, is also a great barrier to providing diabetes education. The ADA recently increased the initial application fee for diabetes education centers from \$850 to \$1050. Perhaps the ADA is unaware that many diabetes education centers already perceived that the payment was both a general and rural barrier. Our results showed that fees were considered a greater barrier by rural providers (about 33%) than urban providers (25%). The ADA recognition process itself was perceived as a barrier by almost half of rural respondents. The rigorous ADA recognition process, although designed to establish minimal quality standards, may discourage new providers from attempting to enter the market, particularly in rural areas. The ADA recognition process requires high sunk costs in terms of

application and initial treatment, which may not be retrievable considering the low Medicare reimbursement rate.

Based on a review of state Diabetes Control Programs as presented on the National Diabetes Education Program web site [<http://www.cdc.gov/diabetes/states/index.htm>], few states are providing technical assistance to help rural providers become certified to bill for DSME. Principal activities reported by states that have capacity building or planning grants include surveillance, public awareness, community development activities, and professional education. Many work with community health centers to deliver diabetes education messages or to participate in the Diabetes Health Disparities Collaborative sponsored by the Bureau of Primary Care, HRSA. Only five states described programs that expand the availability of DSME by increasing the number of providers who can be reimbursed for this service:

- The **Michigan** DPCP has developed standards and procedures to help local organizations meet Medicare and Medicaid outpatient education certification requirements.
- The **Maine** DPCP has certified state-qualified ambulatory diabetes education and follow-up sites since 1980. Medicare reimbursed state-certified educators until February 2001, when the new regulations were initiated. All Maine state-certified programs then applied and became recognized by the ADA to continue Medicare coverage for their clients. The thirty-five sites, which include most Maine hospital and two home health agencies, are eligible for Medicare, Medicaid and private insurance reimbursement.
- The **Rhode Island** DPCP certifies state DSME programs and educators, although the web site does not specifically state that this includes reimbursement.
- In **South Dakota**, the DPCP provides technical assistance for facilities that wish to meet national standards in order to receive reimbursement from insurers and Medicaid.

- **Washington** provides technical assistance to organizations seeking to qualify for Medicaid reimbursement for diabetes education.

Two other states report diabetes programs with a specific rural focus:

- **Illinois** is trying to improve adherence to guidelines for diabetes in rural health centers and home health agencies in rural areas and working on a rural model of care.
- **Oklahoma** reports a trial of telemedicine for rural screening for diabetic retinopathy.

#### Perceptions as a barrier

The discrepancy in perceptions of rural barriers between rural and non-rural providers could affect rural health policy in two ways. First, it could imply that barriers are not as much of a problem in rural areas as most people, including researchers and policy makers, have indicated in the past. Assuming that rural providers are better judges of what issues affect their ability to provide care, then less agreement for many of these barriers could suggest that rural areas really are not adversely affected. However, considering the very large percentages of rural respondents that agreed that many of these barriers were present, we conclude that rural providers face most of the same problems that are present in urban areas, and face additional problems, such as transportation, that are unique to rural areas. Furthermore, even when only rural providers were examined, larger percentages still agreed that more barriers were present in rural areas than in urban areas.

The perception of greater problems in rural areas among non-rural providers could also lead to a sort of self-fulfilling prophecy in the relationship between rural provision of DSME and the barriers to providing these services. If providers in urban areas, including hospitals and hospital administrators, practitioners, CDEs and other non-certified diabetes educators, perceive that rural barriers are greater than they actually are, then these providers might be discouraged

from expanding services in rural areas. These exaggerated beliefs may keep larger hospital systems, which generally have more resources to support diabetes education programs, out of rural areas, leaving the provision of diabetes education to independent practitioners and smaller hospitals. These smaller hospitals and providers could face more barriers than the larger hospitals would have, reinforcing the opinion that there are more or greater barriers in rural areas. If more urban providers were to expand services in rural areas, then the barriers might not be as great as in rural areas, and perceptions might not be so different between rural and urban providers. The lack of institutional support and adequate staffing and financing that was indicated by urban respondents may, when combined with the inflated perceptions of barriers to providing care in rural areas, act as barriers to rural expansion efforts. Although not examined directly in this study, it may be that a misperception about the degree of barriers to providing care in rural areas may be one of the greatest barriers to providing diabetes education to rural Medicare beneficiaries.

#### Specific Recommendations

Our recommendations focus on two areas: ensuring that current requirements for reimbursement do not serve as barriers to the receipt of DSME by rural populations, and ensuring that rural providers receive technical support that can assist them meet current or future reimbursement requirements.

- The Centers for Medicare and Medicaid Services should assess whether the current certification/recognition process for reimbursable DSME poses undue challenges to rural providers and thus reduces services available to rural Medicare recipients.

We recommend that CMS convene an panel of rural experts in diabetes care to review the requirements of ADA recognition, their impact on rural providers, quality assurance concerns,

and the potential for state and voluntary organizations to work together to ease the recognition process for rural providers. Panel membership should include ADA recognized and non-recognized education providers, the American Diabetes Association, the American Association of Certified Diabetes Educators, CDC Diabetes Control Program and National Diabetes Education Program officials, Medicare reimbursement specialists, and representatives of the State Offices of Rural Health. As part of this process, CMS should conduct a thorough cost analysis of the recognition process for rural providers. This research would estimate the costs of the recognition process including treatment, data collection, and staffing costs, and evaluate these costs against current reimbursement by both government and private payors.

- The Diabetes Control and Prevention Program of the Centers for Disease Control and Prevention should encourage state Diabetes Prevention and Control Programs to offer or coordinate technical assistance to rural providers seeking certification for DSME.

Expanding the pool of providers that can be reimbursed for DSME constitutes a structural community change that increases the availability of DSME over the long term. With a funding mechanism already in place, DSME can become institutionalized. At present, however, we were only able to identify a small number of states providing or coordinating technical assistance that could bring about this form of change. We recommend that the Centers for Disease Control and Prevention modify current grant guidance to encourage states to develop innovative mechanisms and partnerships for increasing the number of eligible DSME providers. Further, in light of the barriers to rural providers documented in this report, we recommend that the Centers for Disease Control and Prevention highlight the need for state proposals that address rural populations and providers. In implementing this recommendation, we suggest that states with existing technical assistance programs, identified below, be requested to participate in a steering committee.

- The National Diabetes Education Program of the Centers for Disease Control and Prevention should expand its efforts to include rural providers and persons with diabetes. At present, the workgroups and steering committee of the National Diabetes Education Program do not include advocates for rural health and rural populations. At minimum, it is recommended that representation from the National Organization of State Offices of Rural Health or the National Rural Health Association be considered for membership on one or more workgroups.

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## **Appendix A: Methods**

### **Expert Panel and Survey of Diabetes Control Program Coordinators**

In preparation for a 1,200 facility survey of the barriers faced by ADA recognized Diabetes Education Centers in providing care to Medicare beneficiaries, the authors convened an expert panel of diabetes education providers located within 100 miles of Columbia, SC and conducted a phone and email survey of state Diabetes Control Program Coordinators.

For the expert panel meeting, names of diabetes educators were obtained from identifying the regional diabetes education centers on the ADA Website, calling the center to ascertain the name of the head of the center, and mailing a letter addressed to her (all were female). A total of 11 educators were contacted by phone and email. Five individuals reported that they would be able to attend a session held in Columbia, SC; six actually attended, one via conference call. The discussion was led by the principal investigator (Powell), with another investigator transcribing comments. The session was not mechanically recorded.

The expert panel members were asked about their experience with the ADA recognition process, any problems they have encountered with the recognition process, general barriers that they faced in providing care to Medicare beneficiaries, and rural-specific barriers to providing care to Medicare patients. After the general or common barriers were listed, respondents assessed the relative importance of the listed barriers using a multi-voting technique. The multi-voting technique allowed each respondent to distribute five votes across barriers, or to assign more than one vote to a barrier that they believe to be particularly important. The number of votes placed by each barrier was used to rank the barriers in order of importance. The process was repeated for rural barriers. The full lists of barriers are available in Appendix A (Tables A-1 and A-2).

The names and initial contact information for most states' Diabetes Control Programs were obtained from the CDC website on state-based programs. During the survey process, the DCPC from one state supplied the mailing list for all DCPCs in the United States to the investigator. This allowed the investigator to update the mailing list and contact all 51 DCPCs. A three-question survey was emailed to all 51 DCPCs in the U.S. and District of Columbia. The respondents could choose to answer the survey via email or telephone, or not to respond. Two email reminders, with new surveys attached, were sent to those who had not responded one to two months following the initial mailing. The three questions asked were as follows:

- 1) Do health care organizations in your state report problems with obtaining ADA recognition/certification for Medicare reimbursement?
  - a. If so, what kind of problems do they report?
- 2) Do you think that it is more difficult for rural providers to obtain ADA recognition/certification than for urban providers?
- 3) In your opinion, what are the major organizational barriers to providing diabetes education to Medicare patients (not looking for personal or patient level – only facility level)?

Of the 51 DCPCs contacted, 3 responded that they had no experience with the ADA recognition process. Of the remaining 48 DCPCs, 34 responded to the survey, yielding a response rate of 70.8%.

Neither the expert panel, nor the survey of DCPCs is representative of the entire population from which they were chosen. Although an attempt was made to include views from all DCPCs in the United States, some did not wish to participate and some had no experience with the diabetes education program recognition process. The individuals who were surveyed are also patient advocates. Therefore, their views may be somewhat biased. Criticisms of

reimbursement and regulation should not be surprising in these cases, although this does not negate importance of the opinions expressed by respondents. Perceived barriers can prohibit the provision of services. It should also be noted that our questions specifically focused on problems with recognition and reimbursement. Thus, barriers are extensively cited because the purpose of the discussion was to elicit barriers. However, the fact that both the expert panel in South Carolina and experts across the country mentioned the same problems lends some credence to the generalizability of these problems and barriers.

**Table A-1. General Barriers to Providing Diabetes Education to Medicare Beneficiaries  
(Rural and Urban)**

<b>Barriers</b>	<b>Number of Votes</b>
<u>General Facility Barriers</u>	
Medicare reimbursement	11
Staffing/Financial (funding program, etc)	9
Physician cooperation with diabetes educators	4
Lack of emphasis or priority attention from organization	4
Physicians' attitudes, behaviors, cooperation, knowledge, etc	1
Physician cooperation with other providers	1
Process of certification (paperwork, seeing patients at same time)	0
Space (facility space)	0
Handling multiple comorbidities	0
<u>General Patient Barriers</u>	
Financial barriers (co-payments, cost of supplies)	9
Transportation	6
Fatalism or emotional acceptance	4
Stigma	2
Literacy	2
Education	1
Lack of family support or social support systems	1
Functional impairments	1
Fear and denial about the disease	1
Lack of communication skills or unwillingness to communicate through different means	1
Low supply (shortage) of specialists	1
Physician won't refer or doesn't give the patient enough care	1
Language/translation	0
Multiple medications/poly pharmacy	0
Disabilities	0
Comorbidities lead to less emphasis on diabetes	0
Physician knows everything, would have told them if something was wrong, etc.	0
Cultural barriers	0

**Table A-2. Barriers to Providing Diabetes Education to Rural Medicare Beneficiaries**

<b>Barriers</b>	<b>Number of Votes</b>
Patient transportation	9
Patient access issues (food, supplies, medicines, doctors, etc)	4
Patient cultural barriers	4
Patient poverty	3
Different Mindset	3
Lack or shortage of diabetes educators	3
Patient: Food and nutrition	2
Patient fatalism	2
Overwhelmed physicians – don't know enough	1
Overwhelmed physicians – don't have time to manage diabetes in patients	1
Expense or high cost of many items in rural areas	0
Organizational barriers (funding, priorities, etc)	0
Medicare reimbursement	0
Other Medicare issues	0

#### **Mail Survey of Diabetes Self-Management Education Centers**

The sampling frame consisted of the 2,375 American Diabetes Association recognized diabetes self-management education centers listed on the ADA website as of October 15, 2002. All diabetes education centers in the sampling frame were assigned random values. Then, 1,200 facilities (50.5%) were drawn from the sampling frame. The sample was reviewed to eliminate potential duplicates, invalid addresses, or non-Medicare providers such as pediatric facilities. Eighteen (18) facilities were eliminated from the sample and replaced.

Initial letters and surveys were mailed to the sampled diabetes education centers in late June 2003 and yielded 432 valid responses. The second mailing was sent in late July to those who had not responded to the first letter and survey; this round yielded another 229 valid responses. The final letter was sent at the end of August and yielded 123 valid responses. Thirty-nine (39) surveys were returned undeliverable or unanswered, leading to an overall response rate of 67.5% (784/1161). The survey instrument is displayed in Appendix B.

Descriptive frequency statistics were calculated for each of the variables in the survey. The main results are presented in Chapter Four. Additional frequency results appear in Appendix C. Responses are for barriers presented as “general” (no specification of rural or urban) and for rural specifically. Provision of services to rural beneficiaries was determined using the question “Does your facility provide diabetes education in rural areas?” All affirmative responses are counted as representing “rural” providers, all negative responses are counted as representing “non-rural” providers. Therefore, a provider that is located within an urban area, but provides care to rural beneficiaries in one or more rural areas, would be considered a “rural” provider for this study’s purposes.

McNemar’s tests were conducted to compare agreement and disagreement between responses to the general and rural barriers. McNemar’s test is a chi-square test designed for use with paired data. Since respondents who rated the rural barriers also rated the general barriers, these data are paired and a regular Chi-Square would not accurately measure the differences between the barrier ratings.

Chi-Square analyses were performed for rural and non-rural provider comparisons of the perceptions of general and rural barriers. The first tested the relationship between rural and non-rural providers and each of the fifteen general barriers listed in the survey. The second analysis tested the relationship between rural and non-rural providers and each of the fifteen rural barriers listed in the survey. It must be noted that these results are questionable because non-rural providers account for 27% of the respondents and could be answering questions based solely on perceptions (or misperceptions) rather than experience.

## **Appendix B: Survey Instrument**



**Survey of Diabetes Education Providers**

Q1 How many counties does your facility cover? \_\_\_\_\_

Q2 Please list all of the counties in which your facility provides diabetes education.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Q6 Does your facility provide diabetes education in rural areas?  
 Yes  No

Q7 Please indicate whether you agree or disagree with the following statements.

The most challenging barriers to providing diabetes education for Medicare patients in rural areas are:

Please indicate whether you agree or disagree with the following statements:  
 The most challenging barriers to providing diabetes education for Medicare patients in general are:

- | GEN   | Strongly Disagree | Strongly agree |
|---|-------------------|----------------|
| 1 Paying for the ADA recognition process          | 1                 | 5              |
| 2 Undergoing the ADA recognition process          | 1                 | 5              |
| 3 Too little Medicare reimbursement               | 1                 | 5              |
| 4 Staffing/financial/institutional support        | 1                 | 5              |
| 5 Physicians are not cooperative                  | 1                 | 5              |
| 6 Medicare does not cover enough hours            | 1                 | 5              |
| 7 Language barriers                               | 1                 | 5              |
| 8 Transportation                                  | 1                 | 5              |
| 9 Patient financial problems/poverty              | 1                 | 5              |
| 10 Fatalism or emotional acceptance by patients   | 1                 | 5              |
| 11 Social stigma associated with diabetes/illness | 1                 | 5              |
| 12 Lack of literacy and/or education              | 1                 | 5              |
| 13 Patient functional impairments or              | 1                 | 5              |
| 14 Lack of family or social support for patients  | 1                 | 5              |

- |   | Strongly Disagree | Strongly agree |
|---|-------------------|----------------|
| 1 Paying for the ADA recognition process          | 1                 | 5              |
| 2 Undergoing the ADA recognition process          | 1                 | 5              |
| 3 Too little Medicare reimbursement               | 1                 | 5              |
| 4 Staffing/financial/institutional support        | 1                 | 5              |
| 5 Physicians are not cooperative                  | 1                 | 5              |
| 6 Medicare does not cover enough hours            | 1                 | 5              |
| 7 Language barriers                               | 1                 | 5              |
| 8 Transportation                                  | 1                 | 5              |
| 9 Patient financial problems/poverty              | 1                 | 5              |
| 10 Fatalism or emotional acceptance by patients   | 1                 | 5              |
| 11 Social stigma associated with diabetes/illness | 1                 | 5              |
| 12 Lack of literacy and/or education              | 1                 | 5              |
| 13 Patient functional impairments or              | 1                 | 5              |
| 14 Lack of family or social support for patients  | 1                 | 5              |

About you: Gender:  Male  Female

Discipline:  Nursing  Social work  
 Nutrition/Dietitian  Health Administration  
 Medicine  Other: \_\_\_\_\_

Years organization has provided care: \_\_\_\_\_

How many diabetes educators are employed at your facility?

Full-time \_\_\_\_\_ Part-time \_\_\_\_\_

How many certified diabetes educators are employed at your facility? Full-time \_\_\_\_\_ Part-time \_\_\_\_\_

## Appendix C: Selected Tables

**Table C-1. Perceptions of General and Rural Barriers, All Providers**

Barrier	Strongly Agree		Agree		Neither		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%	#	%
<b>General Barriers</b>										
Paying for the ADA recognition process (Q3A)	69	9.0	126	16.4	245	31.9	197	25.6	132	17.2
Undergoing the ADA recognition process (Q3B)	113	14.7	208	27.0	217	28.2	144	18.7	89	11.5
Too little Medicare reimbursement (Q3C)	346	45.3	215	28.1	143	18.7	46	6.0	14	1.8
Staffing/financial/institutional support (Q3D)	150	19.5	194	25.2	204	26.5	146	19.0	75	9.8
Physicians are not cooperative (Q3E)	49	6.3	112	14.5	181	23.4	245	31.7	186	24.1
Patients are not compliant with care (Q3F)	35	4.5	132	17.1	328	42.5	207	26.8	70	9.1
Medicare does not cover enough hours (Q3G)	239	31.1	190	24.7	180	23.4	117	15.2	43	5.6
Language barriers (Q3H)	25	3.2	67	8.7	214	27.7	274	35.5	193	25.0
Transportation (Q3I)	66	8.5	184	23.8	281	36.3	185	23.9	58	7.5
Patient financial problems/poverty (Q3J)	191	24.7	272	35.1	219	28.3	77	9.9	16	2.1
Fatalism or emotional acceptance by patients (Q3K)	38	4.9	154	19.9	349	45.1	204	26.4	29	3.8
Social stigma associated with diabetes/illness (Q3L)	14	1.8	88	11.4	282	36.5	312	40.4	76	9.8
Lack of literacy and/or education (Q3M)	43	5.6	144	18.7	291	37.8	252	32.7	40	5.2
Patient functional impairments or comorbidities (Q3N)	56	7.2	250	32.3	292	37.8	161	20.8	14	1.8
Lack of family or social support for patients (Q3O)	40	5.2	157	20.3	349	45.0	206	26.6	23	3.0
<b>Rural Barriers</b>										
Paying for the ADA recognition process (Q7A)	103	18.4	119	21.3	159	28.4	108	19.3	71	12.7
Undergoing the ADA recognition process (Q7B)	132	23.6	157	28.0	134	23.9	83	14.8	54	9.6
Too little Medicare reimbursement (Q7C)	283	50.5	154	27.5	87	15.5	29	5.2	7	1.3
Staffing/financial/institutional support (Q7D)	151	26.8	177	31.4	119	21.1	73	12.9	44	7.8
Physicians are not cooperative (Q7E)	50	8.9	99	17.7	156	27.9	140	25.0	115	20.5
Patients are not compliant with care (Q7F)	50	8.9	130	23.2	212	37.8	130	23.2	39	6.6
Medicare does not cover enough hours (Q7G)	187	33.3	127	22.6	134	23.9	88	15.7	25	4.5
Language barriers (Q7H)	23	4.1	61	10.9	164	29.4	181	32.4	129	23.1
Transportation (Q7I)	128	22.8	191	34.0	132	23.5	78	13.9	33	5.9
Patient financial problems/poverty (Q7J)	190	33.8	220	39.1	107	19.0	43	7.6	3	0.5
Fatalism or emotional acceptance by patients (Q7K)	52	9.3	131	23.4	237	42.4	130	23.3	9	1.6
Social stigma associated with diabetes/illness (Q7L)	23	4.1	70	12.5	226	40.4	200	35.8	40	7.2
Lack of literacy and/or education (Q7M)	58	10.3	163	29.1	195	34.8	125	22.3	20	3.6
Patient functional impairments or comorbidities (Q7N)	55	9.8	202	35.9	196	34.8	101	17.9	9	1.6
Lack of family or social support for patients (Q7O)	13	2.3	139	24.8	230	41.0	134	23.9	45	8.0

**Table C-2. Perceptions of Rural Barriers, Rural Providers only**

Barrier	Strongly Agree		Agree		Neither		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%	#	%
<b>Rural Barriers</b>										
Paying for the ADA recognition process (Q7A)	63	15.5	85	20.9	120	29.6	84	20.7	54	13.3
Undergoing the ADA recognition process (Q7B)	86	21.2	109	26.9	103	25.4	67	16.5	41	10.1
Too little Medicare reimbursement (Q7C)	204	50.6	109	27.1	63	15.6	24	6.0	3	0.7
Staffing/financial/institutional support (Q7D)	87	21.4	118	29.1	95	23.4	68	16.8	38	9.4
Physicians are not cooperative (Q7E)	29	7.2	66	16.3	107	26.4	105	25.6	98	24.2
Patients are not compliant with care (Q7F)	34	8.4	93	22.9	152	37.4	99	24.4	28	6.9
Medicare does not cover enough hours (Q7G)	133	32.8	91	22.5	93	23.0	69	17.0	19	4.7
Language barriers (Q7H)	12	3.0	29	7.2	107	26.6	143	35.5	112	27.8
Transportation (Q7I)	75	18.5	133	32.8	110	27.1	66	16.3	22	5.4
Patient financial problems/poverty (Q7J)	133	32.6	158	38.7	79	19.4	35	8.6	3	0.7
Fatalism or emotional acceptance by patients (Q7K)	33	8.2	93	23.0	167	41.2	106	26.2	6	1.5
Social stigma associated with diabetes/illness (Q7L)	11	2.7	43	10.6	161	39.9	160	39.6	29	7.2
Lack of literacy and/or education (Q7M)	36	8.9	109	26.9	142	35.0	101	24.9	18	4.4
Patient functional impairments or comorbidities (Q7N)	31	7.6	149	36.5	140	34.3	80	19.6	8	2.0
Lack of family or social support for patients (Q7O)	11	2.7	108	26.5	175	43.0	87	21.4	26	6.4