

Facilitating Self-Management of Diabetes Through Education: The North Carolina Case

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Self-management education is such a critical part of diabetes care that medical treatment without it is considered inadequate. This article discusses the North Carolina Diabetes Education Recognition Program and calls for expansion of this program through local health departments.

Diabetes is a chronic disease that affects >25.8 million Americans—8.3% of the US population. While 18.8 million people have received a diabetes diagnosis, another 7 million individuals with diabetes have not received a diagnosis, and 79 million are estimated to have prediabetes. In 2010, 1.9 million new cases of diabetes were diagnosed in people aged ≥ 20 years. In the United States, the total annual economic cost of diabetes during 2007 was estimated to be \$174 billion [1]. Diabetes-related health care expenses are up to 3.5 times the health care expenses for people who do not have diabetes. The first steps toward reducing the burden of diabetes involve determining people who are at risk for the disease and detecting the disease once it occurs.

North Carolina has the 13th highest prevalence of diabetes among adults in the nation, with diabetes diagnosed in >640,000 (9.6%). Diabetes is underdiagnosed in approximately 232,000 North Carolina adults, and prediabetes is present in 376,000. Diabetes is the seventh leading cause of death in North Carolina. Racial disparities are evident in the state: the prevalence of diabetes among African Americans is 15.6%; among American Indians, 11.7%; and among whites, 8.4% [2].

Poorly managed diabetes can lead to increased complications, such as blindness, amputations, and kidney disease. Today, self-management education is such a critical part of diabetes care that medical treatment without it is considered inadequate. Appropriate medical care, diabetes self-management education (DSME), and medication must be available to everyone with diabetes, to prevent complications. Yet in North Carolina, >46% of persons with diabetes have never taken a class in how to manage the disease [3]. A 2005 survey showed that, of the 85 local health departments statewide, only 58% reported having the capacity to provide health education services for persons with diabetes [4].

The Diabetes Prevention and Control Program in the North Carolina Division of Public Health established the

North Carolina Diabetes Education Recognition Program (NCDERP) in 2006. The mission of the NCDERP is to provide quality, comprehensive DSME, to empower persons with diabetes. The purpose is to increase access to self-management training for people with diabetes across the state, while providing a mechanism for reimbursement to local health departments. To receive third-party reimbursement for DSME, a site must be recognized by the American Diabetes Association (ADA), the American Association of Diabetes Educators, or the Indian Health Service. The additional reimbursement builds capacity at the local level to provide self-management education for uninsured and underinsured individuals.

North Carolina is the first state to develop a statewide umbrella program in which the Division of Public Health is the sponsoring agency and local health departments are the sites where services are provided. The NCDERP works with local health departments across North Carolina, with particular emphasis on poor, rural counties with high rates of diabetes. The population served by North Carolina health departments is primarily uninsured or underinsured. Many local health departments provide care for uninsured individuals through the provision of clinical safety net services. All health departments provide health education and promotion programs for individuals who need disease management and healthy living services.

By increasing the infrastructure of local health departments, the program ensures that DSME is available to people who have no other resources for education. The program increases the quality of patient care by providing evidence-based guidelines for diabetes care and education. In addition, the program implements systems change, so that persons with diabetes receive adequate and vital education earlier and more consistently, to increase quality of life and decrease complications. When the NCDERP began, in 2006, there were only 82 ADA-recognized programs. At present,

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Hospital-Based Self-Management of Diabetes

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Mission Hospital is an 800-bed, not-for-profit, independent community hospital system located in Asheville, North Carolina. The Health Education Center, an outpatient program of Mission, includes the Diabetes Center, which is accredited through the American Diabetes Association. The Diabetes Center has a sister diabetes program at McDowell Hospital, in Marion, North Carolina, that provides diabetes education for adults in that region.

For patients with or at risk for diabetes, one of the advantages conferred by the Diabetes Center's relationship with Mission Hospital is that the center shares the hospital's mission of serving all individuals in western North Carolina and the surrounding region. A second advantage is that the Health Education Center has the financial backing to conduct yearly community programs to reach underserved and minority populations, with no charge to the participants. The events serve 100-300 people each year and include screening for hyperglycemia, measurement of high blood pressure, and calculation of body mass index. Education in the areas of basic diabetes pathophysiology, nutrition, and exercise is provided by certified diabetes educators and physicians. Participants also receive healthy snacks and recipes and are given blood glucose meters and taught how to use them.

Mission sees value in educating health professionals about diabetes. Since 2000, Mission, along with the Mountain Area Health Education Center and other community and regional organizations, has planned and held an annual professional diabetes clinical workshop for medical, nursing, pharmacy, and nutrition professionals. This workshop reaches 180-250 health professionals per year and covers the most up-to-date research and trends in diabetes care.

Twenty-four percent of inpatients discharged from Mission have a diagnosis of diabetes or hyperglycemia. Two years ago, Mission started a diabetes-resource program for nurses. This is a comprehensive diabetes education program for bedside nurses, who, by expanding their knowledge base, are thus better equipped to provide education about diabetes-associated survival skills to inpatients with diabetes. Part of this training is to reinforce the importance of ensuring that patients receive a referral to outpatient diabetes self-

management training at the time of discharge, either at one of Mission's diabetes centers or at another outpatient education center in the region.

Another advantage of being based in a hospital system is that patients can receive care and services from a multidisciplinary team of professionals. Our outpatient diabetes education team includes an endocrinologist, who serves as our medical director, and 10 certified diabetes educators from the nursing, nutrition, and pharmacy professions. Our team also includes an exercise specialist and a clinical social worker. The ability to refer patients for multiple types of services within the same program is convenient for both patients and clinicians. Also, having professionals with multiple backgrounds available to discuss issues such as treatments, disease cases, and patient-related challenges is a tremendous advantage for the clinicians/educators.

Having such a large team also enables us to offer comprehensive services, including diabetes self-care classes, an insulin pump course, a gestational diabetes course, medical nutrition therapy, initiation of continuous glucose monitoring, a program on pediatric diabetes, individual consultations for diabetes and nutrition education, diabetes support groups, and employer-sponsored disease management programs. Of note, patients participating in the disease management programs undergo long-term follow-up by our clinicians and are seen quarterly for clinical assessment, goal setting, monitoring, and drug therapy review. In this population, we have seen significant improvements in hemoglobin A_{1c} and lipid levels, decreased per-patient medical costs, and reduced numbers of sick days.

These services are not a significant source of revenue for Mission. Their value is instead found in the community-level health and wellness benefits they yield, as well as in the satisfaction exhibited by the patients who visit us and by the team of professionals available to care for them. **NCMJ**

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North Carolina has 122 ADA-recognized programs, with 200 sites in total; >30% are health departments. The NCDERP has 42 programs, with a total of 51 sites.

DSME significantly affects the complications of diabetes in the target population, and it has been shown that providing DSME to vulnerable populations has an effect on participants' health and quality of life. Studies have found that improved glycemic control benefits people who have type 1 or type 2 diabetes: in general, each percentage point decrease in a person's hemoglobin A_{1c} level can reduce their risk of microvascular complications (ie, eye, kidney, and nerve diseases) by 40% [1]. NCDERP sites have seen almost 3,000 patients since the program's inception. Unpublished

data from December 2010 show that the average hemoglobin A_{1c} level for patients beginning the program is 7.98% and that the average level for those who complete the program is 7.0%. More than 62% of patients who complete the program have a hemoglobin A_{1c} level of ≤7.0%.

While the program clearly increases the quality of life and decreases diabetes-related complications for participants, the reimbursement issues for local health departments remain a source of frustration. The Centers for Medicare and Medicaid Services made an online manual change, effective April 19, 2010, stating that health departments can no longer enroll as Part B providers. Enrollment as Medicare Part B providers allows health departments to bill and be reimbursed for

the DSME services. At present, only a credentialed provider or a registered dietitian can bill for services through Medicare. But with this change, even if the registered dietitians are credentialed with Medicare, they cannot reassign their benefits to the health department unless the health department is already an established Medicare provider. That means that no new registered dietitians can be credentialed with Medicare if they work for the health department. This is an issue for all new DSME sites that are not already enrolled in Medicare Part B. For the >40 local health departments that offer DSME, Medicare recipients make up 19%-53% of the patient population. Very few of these 40 sites are already Medicare Part B providers; as a result, many sites still need to enroll but cannot do so because of this change. The changes to Medicare Part B were added in April 2010 and did not affect health departments already enrolled in Medicare Part B.

Health departments that are credentialed with Medicaid and third-party insurers have the ability to bill patients with these insurance carriers. Because all patients must be billed consistently, without Medicare Part B allowing this to be a billable service, Medicare recipients would have to pay out of pocket or choose from a limited availability of private providers or hospitals offering the service in the area. Choices are limited because private providers and hospitals may not have access to interpreters or other resources provided by local health departments. This service is also a revenue-generating program for local health departments, unlike many other educational services they offer. In addition, patients who are referred to the health department for DSME can potentially be referred to the registered dietitian for medical nutritional therapy, which is an additional billable service for Medicare Part B recipients with a diagnosis of diabetes. Without the ability to bill for DSME, these patients are not coming through the local health department, causing local health departments to lose the potential to provide and bill for 2 services.

For a health department's DSME program to be self-sustaining, it must have a payer mix that compensates for the cost of treating patients who are uninsured or indigent. On the basis of geographic area, the percentage of the patients with Medicare can be extremely high (53%), preventing many patients from receiving this service, because of cost. At the time of writing, in June 2011, the reimbursement rate for a patient who completed the full 10-hour program is \$106.46 for the 1-hour one-on-one initial visit (\$53.23 per 30 minutes) and then \$327.24 for 9 hours of group education (\$18.18 per 30 minutes). The total billable amount per patient is \$433.70.

Recently, Palmetto GBA replaced Cigna as the North Carolina contractor for Medicare. This may yield a change in perspective that allows public health departments to become Part B providers, which, in our view, should be the case because health departments are not public health services. Public health departments have been grouped with the Public Health Service, the Department of Veterans Affairs, the Department of Defense, and TRICARE [3]. This grouping is not appropriate, because while the other providers receive federal funding for these services, public health departments do not. We believe the public health service exception was intended to apply to the US Public Health Service Commission Corps and has been incorrectly interpreted to include local public health departments. North Carolina is working to clarify this issue.

Diabetes self-management programs should remain in the public health sector, so that vulnerable populations who are unable to access services in the private sector can receive critical education and support in the management of diabetes. NCDERP has served >3,000 patients during the past 4 years. Continuing and expanding the program through local health departments is the most effective way to reach individuals most in need and thereby decrease their diabetes-related complications and improve their overall quality of life. **NCMJ**

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