Partnership Approaches to Reducing Socioeconomic Disparities in Diabetes Care in North Carolina

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Almost 8% of the US population between the ages of 20 and 74 years are affected by a common chronic condition known as diabetes mellitus.[1] Diabetes is the seventh leading cause of death in the United States and is a major risk factor for cardiovascular disease, end-stage renal disease, lower-extremity amputation, and adult blindness.[2] This chronic disease is particularly burdensome for the residents of North Carolina[3] given that an estimated 360 000 North Carolinian adults have been diagnosed with diabetes. North Carolina ranks in the top 15% of individual US states in diabetes mortality,[4] and diabetes is the seventh leading cause of annual deaths in the state (over 1800). In addition, complications related to diabetes contribute another 5100 deaths and account for about 14% of all hospitalizations, representing a cost of about $1.5 billion.[5] There is substantial evidence that diabetes takes a tremendous toll on persons of low socioeconomic status, the elderly, and most ethnic minority groups, including African Americans, who represent about 25% of the state's population. Diabetes prevalence is at least twice as high among African Americans compared with non-Hispanic whites. The diabetes mortality rate for African Americans is 3 times higher than for whites.[1]

Clinical care and diabetes self-management education are important components of programs to effectively reduce the devastating effects of diabetes.[6-10] In the populations that are most vulnerable to diabetes, a number of barriers impede the delivery of high-level care for patients with diabetes, including access to diabetes specialty care, inadequate insurance coverage, lack of ethnic and cultural competencies, and lack of transportation.[11-14] Thus, there is a tremendous need for the development of nontraditional approaches to reduce the burden of diabetes in these populations. As health care shifts from a hospital base to a variety of community health settings, health and allied health professionals will provide health care to a growing community of ethnically diverse individuals, who are represented disproportionately among the poor and whose languages, customs, values, lifestyles, beliefs, and behaviors may differ from that of the health-care provider. Healthcare providers and organizations that deliver care should be sensitive to the special needs of low income and

ethnically diverse groups and develop patient education programs and tools that are culturally and linguistically appropriate.

This paper describes a unique initiative involving partnership approaches to reduce the burden of diabetes among low-income residents in North Carolina. The focus of the initiative was to improve the quality of life and quality of care for poor and underserved persons with diabetes mellitus through active involvement of community-based organizations, local and regional collaboration among physicians, nontraditional healthcare providers, allied health professionals, and public health agencies. The underlying premise was that substantial community involvement combined with integrated coordinated care might contribute to reducing the socioeconomic disparities in diabetes care for this target population. Project IDEAL proposed to have a long-term, positive impact on the health of low-income North Carolinians, especially those with diabetes. The initiative sought to assist funded programs in developing similar quality improvement efforts related to other chronic medical conditions in the future by using learned partnership approaches that could be easily translated.

METHODS

The theoretical base of this initiative was consistent with the Social Marketing Planning Model.[15-17] The social marketing process of the current diabetes initiative involved individual programs setting objectives, analyzing the target audience and their environment, setting measurable outcomes and timelines, planning and developing a strategy, and implementing the strategy. Getting the community to accept and support the initiative was a vital part of initializing each program. Participation of community members and stakeholders was a key strategy in removing distrust and aided in building strong networks and collaborations. Through this model it was possible to target disparities in access to care and identify successful strategies and approaches to enhance the quality of life and care of this population.

DEVELOPMENT OF THE PROJECT IDEAL DIABETES INITIATIVE

In May of 1999, the Kate B. Reynolds Charitable Trust committed $2.5 million over 2 years to fund 14 programs under the rubric of Project IDEAL (Improving Diabetes Education, Access to care, and Living). Funds were awarded to public and private nonprofit healthcare organizations that served populations with a substantial burden of diabetes, had a record of collaboration with community organizations for the purpose of reaching populations at high risk for diabetes, and had demonstrated sustainability and local commitment. These agencies included public health departments, hospitals, medical centers, community health centers, free clinics, and a rural health network. Each agency began implementing its own unique diabetes care intervention in June of 1999. An additional $1 million was approved in May of 2001 to assist with a third year of funding, extending the program to June of 2002. The objectives of Project IDEAL are described in more detail elsewhere.[18]

The Wake Forest University School of Medicine (WFUSM) Department of Public Health Sciences was designated by the Trust to manage and evaluate the initiative. The evaluation consisted of preintervention and postintervention assessment of both the quality of care and quality of life in random samples of patients with diabetes who received care at these clinics. The preintervention assessment was completed in the spring of 2000, and data from that assessment showed low rates of compliance with diabetes care guidelines as described by Bell et al.[19] The final evaluation occurred in the summer of 2002, and results will be published at a later date. An advisory committee was convened by the management team at WFUSM to provide guidance in the development of the Request for Proposals, to review the proposals received, and to provide technical assistance to participating sites. The committee consisted of representatives of state, federal, and private public health and healthcare agencies. Of the 59 proposals that were received, 14 programs across the state were funded.

RESULTS

Obtaining Community Participation With Program Interventions

Community participation and collaboration with the funded programs proved to be essential throughout the initiative. Program managers, coordinators, and clinic staff developed strong partnerships with key community, civic,

and business leaders, and welcomed input regarding program design and implementation. With community support and participation, the clinic personnel became more familiar with the target population and its social and demographic make up, economic status, education, attitudes, and values. This significant information helped to frame the groundwork to promote healthy choices and acceptance of the program within the community, and increase the likelihood of sustaining the program.

The program coordinators and heathcare professionals responsible for program content and format were sensitive and aware of the group's changing needs at all times, and tailored their programs accordingly. Programs were designed taking into consideration the cultural and religious traditions of the target group, not only in the planning phase of the program but also during its implementation. Coordinators discovered early on that information had to be imparted in a way that corresponded to a target group's special needs and preferences. Obtaining American Diabetes Association (ADA) Recognition status became a major goal for most of the programs. Each of the programs followed the clinical guidelines that are published annually by the American Diabetes Association.[7] Eleven of the 14 programs received ADA Recognition, which allows for reimbursement from Medicare and Medicaid and is a key aspect of their plans for sustainability.

Project IDEAL Programs

The initiative was designed to be accessible to underserved populations to provide appropriate screening, referrals, disease case management, and diabetes education programs. A variety of creative approaches were used across the 14 funded programs to address socioeconomic disparities in care. Several approaches involved establishing new diabetes education and care programs in existing but underutilized physical facilities; using mobile units; staffing satellite sites in community pharmacies, physicians' offices, and other locales; and sending healthcare professionals to low-income residential housing projects. Identification and collaboration of the partnerships described in the Table revealed the numerous networking efforts of the program coordinators and staff to create these diverse relationships.

Addressing Disparities to Care

Patients presented to the clinics with numerous barriers and limitations, such as lack of transportation, childcare, knowledge of diabetes, and access to primary and specialty healthcare providers; language and culture barriers; and inadequate insurance coverage. Some individuals seeking care reported negative past experiences with the healthcare system and mistrust of providers and healthcare professionals. Each of the 14 programs developed plans to identify existing barriers and constructed creative ways to reduce or eliminate such barriers and work toward an optimal level of care. Because transportation was identified as a major barrier for many patients, bus passes were distributed, and door-to-door pickups were provided by some programs. In spite of these challenges, clinic staff provided screenings, diabetes education, nutrition classes, physician referrals, and optimal quality care to over 25 500 low-income and underserved patients with diabetes across the 14 service areas.

Many of the education programs were designed to be culturally sensitive to diverse populations. This goal was accomplished by having available low-literacy and Spanish-language audiotapes and videotapes, print educational materials, and interpreters, and providing services in the local communities. One program had a unique approach that involved having clinicians live on-site in a public housing community to provide diabetes care for community residents. Patients were more compliant and receptive to the requests of the diabetes educator and nutritionist to make dietary and lifestyle changes. Furthermore, the initiative encouraged local and regional collaborations among physicians, healthcare providers, and allied health professionals to enhance the acceptability of the program within the community and increase the likelihood of sustaining the program. Given that many established organizations and neighborhoods in these communities are generally segregated, these partnerships were important for developing trust within the community and ensuring access to care and delivery of culturally appropriate care.

Description of Diabetes Programs Participating in Project IDEAL

Program Name	Program Type/Description	Service Population	Unique Approaches	Collaborations
Albemarle Regional Diabetes Care Program	Health department; expansion of existing multidisciplinary diabetes care program to 3 additional counties; ADA certified	6-county region in northeast North Carolina; 25% of population at poverty level; 25% over age 65; 45% ethnic minority	• Transit bus system takes patients to their doctors (no cost) • Sliding-scale fee for services • Interpreter services available and Spanish educational materials developed • Materials with extra large font size for elderly • Satellite offices in outlying areas	• Churches • Senior centers • Civic organizations • Local hospitals
Better Health of Cumberland County "Taking Charge of Diabetes Project"	Free clinic; provides community screenings, referrals; established a formalized diabetes education and self-care management program	Indigent population of Fayetteville, in central North Carolina; 75% ethnic minority	• Conducted diabetes screenings in African American and Hispanic churces • Conducted diabetes education classes in rural community centers • Held exercise classes in gymnasiums in high-risk neighborhoods • Distributed low-literacy and Spanish-language materials • Developed interactive educational games and self-contained educational modules • Conducted classes on other topics such as preparing living wills, preventing falls, and disaster preparedness	• African American churces • Health department • Neighborhood resource centers • Hispanic Latino centers • Civic organizations
Bladen Health Watch Mobile Diabetes Depot	Hospital-based program; created 1-day Health Depots in rural communities; provides health education, dietary counseling, screening, health assessments, medical assistance	Rural population of Bladen County in eastern North Carolina; 30% of population is Medicaid eligible; 25% are ≥55 years old; 40% ethnic minority	• Developed community-based mobil diabetes depots to reach rural populations • Depots included screening, face-to-face education, and dissemination of educational materials via Health Watch bags containing free samples and coupons • Developed low-literacy educational materials	• Fire department • Churches • Civic organizations • Local businesses • United Way • Health department
Cabarrus Memorial Hospital	Hospital-based program; utilizes a case management approach	Large ethnic minority population of Concord and Cabarrus County in southwestern North Carolina; 60% Hispanic at Logan Clinic; all under age 40; 100% African Americans at the free clinic	• Expanded diabetes program to partner with free clinic program and a community family resource center • Developed library of English and Spanish-language videos and print materials • Developed case management system for patients referred from community center	• Free clinic • Health department • Community family resource center

Description of Diabetes Programs Participating in Project IDEAL (continued)

Program Name	Program Type/Description	Service Population	Unique Approaches	Collaborations
Catawba Diabetes Control Program	Hospital-based program; created a rural diabetes team to provide education, screening, self-care skills, free foot and eye exams; increased number of physician referrals	Population of Hickory and Catawba County in rural western North Carolina; 15% ethnic minority; reaches 100% of the low-income and underserved rural population	• Developed collaboration with churches having large Hispanic congregations • Interpreters available for Hmong and Hispanic patients • Conducts diabetes education and basic care at local soup kitchen • Free medication samples available for indigent patients	• Health department • Pharmaceutical companies • Outreach ministries • Churches • Corporate business partners • Local primary care providers
Columbus County Healthy Carolinians Diabetes Project	Hospital-based program; expansion of existing program to address the barrier of lack of transportaion; establishes diabetes support groups	Population of Columbus County in southeastern North Carolina; 38% ethnic minority	• Conducts screenings, patient education, and nutrition classes • Counsels on medication administration, insulin injection, meal-planning, meter usage, cooking classes, and community resources • Implemented patient pick-up transportation	• Business partnerships • Health department • Pharmacists • Churches • Community volunteers
Duke University Promising Practice Program	Hospital-based program; established to provide diabetes case management through in-home visits to ethnic minority populations	Four zip code area of low-income region of Durham in central North Carolina; identified through emergency room visits for diabetes; 98% ethnic minority	• Developed a model of one-on-one primary care and education in patients' homes • Healthcare provider satellite offices located in public housing communities • Coordinated educational grocery shopping trips for patients • Conducted community-based screenings	• Public housing authority • Local community health centers • Health department • Senior centers • Civic oganizations
Edgecombe Diabetes Control Project	Health department; provides individualized and group diabetes education in rural and remote communities	Rural population of Edgecombe County in northeastern North Carolina; 51% ethnic minority	• Provided educational programs in community colleges, churches, and civic organizations • Spanish-language educational materials available • On-site Hispanic outreach worker • Utilized culturally appropriate food models for nutrition education	• Local hospital • Rotary Clubs • Community college • Churches • Community centers
Free Clinic of Reidsville Diabetes Clinical Monitoring Program	Free clinic; provides early diabetes identification and patient education using clinical pharmacy students and a 200+ community volunteer team	Population of Rockingham County located in the northern region of North Carolina; serves the working poor with no medical insurance; 70% ethnic minority	• Provides diabetes and cardiovascular screening • Conducts one-on-one patient education classes • Free language-appropriate literature; free diabetes monitoring supplies and medication • Conducts educational seminars for health professionals • Replicated program in 2 new locations serving predominately ethnic minority populations	• Greensboro Area Health Education Center • Health department • Hospital, churches • Pharmaceutical companies • 200+ local volunteer base

Description of Diabetes Programs Participating in Project IDEAL (continued)

Program Name	Program Type/Description	Service Population	Unique Approaches	Collaborations
Gaston Family Health Services, Inc, Gaston Diabetes Control Program	Community health center; expansion of diabetes self-management program throughout the county	Population of Gaston County located in the southwestern region of North Carolina; 47% of population uninsured; 45% ethnic minority	• Identified 1500 low-income residents • Provides diabetes education with Hispanic interpreter, free door-to-door transportation • Bilingual diabetes videos and literature available • Designed various levels of reading materials and teaching methods	• Health department • Community and business partners • Hospital
North Carolina Foundaiton for Advanced Health Programs, Inc.	Community health center; partnership between 2 rural healthcare systems (Mt. Olive and Rural Health Group) to provide a diabetes case management approach	Rural, elderly, and poor population of mideastern region of North Carolina; 53% Medicaid (Rural Health Group); 81% uninsured (Mt. Olive)	• Conducts home visits to elderly retirees • Provides education classes in community centers to make it more accessible • Develops support and train-the-trainer groups • Develops easy-to-read goal sheets in English and Spanish printed on bright yellow paper • Staff is learning Spanish	• Hospitals • Business partners • Health care professionals • Community leaders
Onslow County Health Department Diabetes Health Watch	Health department; implemented a community-based diabetes screening and education program	Population of coastal plains of North Carolina (home to Camp Lejeune Marine Corps Base); 40% ethnic minority	• Utilizes media campaign to educate community regarding diabetes and services offered • One-on-one counseling with Hispanic interpreter available • Provides physician referrals • Provides free transportation • English and Spanish materials available	• Social services • Churches • Healthcare professionals • Governmental agencies • Hospital
Wake Health Services, Inc, Awareness and Community Education for Diabetes	Community health center; created a community-specific comprehensive diabetes education and disease identification model	Uninsured population of Wake County in southern North Carolina; 63% ethnic minority	• One-on-one education, counseling, and nutrition classes available • Provides culturally appropriate materials to teach diet and self-management classes • Sends bimonthly informative newsletter • Provides special diabetes education classes for Hispanic population	• Wake Human Services • Pharmaceutical companies • Community centers • Physician offices • Churches and lay members

DISCUSSION

Racial disparities in health care are, unfortunately, numerous for minorities throughout the healthcare system. Certain characteristics of the healthcare system are likely to reinforce disparities in the delivery of quality care to the poor and underserved, such as affordability of healthcare services, healthcare financing policies for indigent care, education bias, and lack of availability of support services (social services, nutrition, weight loss, exercise, smoking cessation, and other lifestyle intervention support programs) within local communities.[20] Many minorities do not understand how to work through the maze of the healthcare system to obtain information about the best practices and the newest tests and procedures. Low health literacy prevents equal access to care and prevents many patients from making full use of the latest treatments and up-to-date clinical information on their illness. As a result, many patients are unable to make

the most of their healthcare services. Active involvement of community organizations could help address these barriers. General awareness regarding health-related issues and the benefits of accessing healthcare services could be improved through culturally appropriate, community-based outreach and education programs.[21] Project IDEAL was designed to encourage partnerships and collaboration with community organizations to address socioeconomic disparities in diabetes care. Project IDEAL addressed barriers to care in the healthcare system by creating programs that are accessible, affordable, and centrally located in neighborhoods within walking distance for many individuals.

Evaluation of the outcomes of Project IDEAL should provide insight regarding the potential roles of community organizations in efforts to improve access to high quality medical care and to eliminate disparities. Program sites that had low levels of quality of care at baseline[19] showed significant improvements in most care indicators after implementation of the site-specific interventions. This initiative aided in the reduction of socioeconomic disparities in diabetes care by enhancing the participation of community-based organizations in efforts to serve low-income patients. This program could serve as a model for other efforts to promote the participation of community organizations in research and demonstration programs.

IMPLICATIONS AND RECOMMENDATIONS

As we work toward the goals established in Healthy People 2010, our goal is to create environments and services that improve the quality of life and care of underserved North Carolinians with or at risk for diabetes mellitus and its complications. The IDEAL initiative has addressed socioeconomic disparities in access to care and quality of care, and has provided successful interventions that positively impact diabetes care and delivery. With the establishment of community partnerships, general awareness regarding health-related issues and the benefits of accessing healthcare services can be improved through culturally appropriate, community-based outreach and education programs. An appreciation of patients' preferences and of the forces in the community that influence these preferences will enhance the likelihood of successful outreach.[6]

We recommend that healthcare programs and organizations involved in the delivery of diabetes services work toward meeting well-established, diabetes-specific quality of care standards. These standards include the requirements of the ADA Provider Recognition Program[22] and Diabetes Education Program, and the guidelines for using the Diabetes Quality Improvement Project performance and outcome measures.[23] There is an urgent need for new local initiatives that connect the resources, knowledge, and skills of all partners to confront the epidemic of diabetes in North Carolina. Additional federal, state, and private resources are needed to disseminate and implement those projects that have been successful at the local level. Quality improvement initiatives that include community-based partnerships will enhance the level of care, particularly among those most vulnerable to diabetes, and cardiovascular disease and its complications.

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