

INNOVATIONS IN THE Prevention AND Treatment of Diabetes

One of the most deadly and disabling consequences of America's obesity epidemic is the precipitous increase of individuals suffering from diabetes. According to estimates by the American Diabetes Association (ADA), approximately 4,110 people are diagnosed with diabetes each day, with 1.5 million new cases diagnosed in 2005. The ADA predicts that one in three Americans born in 2000 will develop diabetes during their lifetime (ADA 2005). These stunning projections, coupled with the serious complications and high health care costs associated with the disease, have spurred action to improve the prevention and treatment of diabetes. Some grantmakers are at the forefront of efforts to meet the needs of people at risk or already diagnosed with diabetes, and to lead transformations in how the U.S. health system prevents and treats this disease.

THE CAUSES & CONSEQUENCES OF DIABETES

What is diabetes? – Diabetes is a disease in which the body does not produce or properly use insulin – the hormone that converts sugar, starches, and other food into energy needed for daily living. According to the ADA, the cause of diabetes is unknown, although both genetics and environmental factors, such as obesity and lack of exercise, appear to play contributing roles. The increased prevalence of diabetes in recent years has roughly mirrored the rise in the nation's obesity rates (Mokdad et al. 2003).

There are two kinds of diabetes, requiring different approaches to prevention and treatment strategies. Type 1 diabetes is usually first diagnosed in children, teenagers, or young adults. In this form of diabetes, the cells of the pancreas no longer make insulin because the body's immune system has attacked and destroyed them. There is no known way to prevent Type 1 diabetes. Type 2 diabetes is the most common form of diabetes and accounts for 90 to 95 percent of all diagnoses. In these cases, the pancreas loses the ability to secrete enough insulin in response to meals (National Diabetes Information Clearinghouse 2005). Being overweight and inactive increases the chances of developing Type 2 diabetes, and is, therefore, the main focus of most prevention efforts.

Who has diabetes? – There are 20.8 million diabetics in the United States (7 percent of the population) (ADA 2005). While an estimated 14.6 million have been diagnosed with diabetes, an additional 6.2 million people are unaware that they have the disease. Diabetes is most prevalent among older adults, women, and certain racial and ethnic groups.

Hispanic, African American, American Indian, and Alaskan Native adults are two to three times more likely than white adults to have diabetes. Recent studies also suggest that, although still rare, diabetes in children and adolescents is being diagnosed more frequently, particularly in Hispanics, African Americans, and American Indians.

What are the consequences of diabetes? – Diabetes is the fifth leading cause of death in America. Total direct and indirect costs attributed to diabetes were estimated at \$132 billion in 2002, approximately 1 out of every 10 dollars spent on health (ADA 2005). Diabetes is associated with an increased risk for a number of serious and sometimes life-threatening complications. Many people first become aware that they have diabetes when they develop one of its serious complications, such as heart disease and stroke, high blood pressure, blindness, kidney disease, amputations, or pregnancy complications.

OPPORTUNITIES FOR GRANTMAKERS

Diabetes is a chronic disease with no cure. People with diabetes, however, can take steps to control the disease and lower the risk of complications. Because of the proven effectiveness of interventions to prevent the onset or delay complications of Type 2 diabetes, many health funders are combining forces with partners in both the public and private sectors to lead efforts to prevent diabetes and improve the quality of treatment for the disease. These strategies include broad efforts to prevent obesity, increase education about the disease and the importance of healthy behaviors to prevention, support direct services to people with the disease, and forge innovations to transform the health system with new models of care for people with or at risk of the disease.

Obesity Prevention – Experts agree that maintaining a healthy weight through good nutrition and regular physical activity is vital to preventing diabetes. One example of a broad effort to prevent diabetes through a comprehensive approach to obesity prevention is The California Endowment's four-year, \$26-million *Healthy Eating, Active Communities* initiative. This initiative, which aims to fight the growing childhood obesity epidemic in California, began in March 2005 and builds on previous work that contributed to the nation's most comprehensive state ban on school soda sales.

A major component of the initiative is funding community demonstration project grantees. These grantees will implement and evaluate strategies to improve environments for healthy eating and physical activity and create momentum for widespread changes in policy and practice that will ultimately lead to preventing obesity. Collaborative work in each of five sectors – schools, after school programs, neighborhoods, media and advertising, and health care – is planned to engage youth, families, community leaders, health professionals, and others in targeted low-income and rural communities in efforts to reduce obesity. Activities of the collaboratives will include improving access to physical activities and nutritious foods at schools, in after-school programs, and in neighborhoods. In addition, the collaboratives will work to develop policies and programs for safe neighborhoods and places to exercise, and that counteract marketing of unhealthy foods to children. The initiative will bolster activities of the community collaboratives with additional support for statewide youth leadership, policy advocacy, media messages, and sharing promising practices with others.

Outreach, Education, and Health Promotion – Another strategy funders are pursuing focuses on increasing education and health promotion services through outreach to people at risk for diabetes. The Allegany Franciscan Ministries, based in Clearwater, Florida, is supporting a diabetic prevention and maintenance education program known as *Each One Reach One*. A \$50,000 grant is being used to hire a program assistant to develop a program model to be offered at 10 community-based sites. The project addresses issues, such as access to preventive care, that serve as barriers to many in minority communities. This participant-centered, community-based program utilizes a faith-based network of more than 40 churches and community agencies to deliver services. The program provides education on diabetes and its related complications through workshops and seminars. Clients also receive screenings and routine check-ups.

Direct Support for Specialized Care – Some funders are responding to the needs of people with diabetes by supporting direct service at specialized care clinics. The Highmark Foundation of Pittsburgh, Pennsylvania recently awarded a grant of \$158,260 to the Uniontown Hospital to support the hospital's efforts to establish a diabetes clinic in Fayette County, Pennsylvania. This community is struggling with the dual challenge of treating an increasing number of diabetic patients while reaching the growing number of individuals at risk of developing the disease. The clinic programs will cover a range of topics, including symptoms and risk factors, as well as techniques for managing the chronic conditions associated with diabetes. Screenings to identify individuals with prediabetic conditions will be conducted. The clinic will also offer specialized exercise programs, instruction on proper medication administration, and self-testing.

Improving Care by Transforming Health Systems

– The past decade has seen substantial advances in the

quality of care for people with chronic conditions such as diabetes. Using tools such as the Institute for Healthcare Improvement's *Breakthrough Series Model*, Associates in Process Improvement's *Model for Improvement*, and the MacColl Institute for Healthcare Innovation's *Chronic Care Model*, health care providers across the country are working to improve chronic care by transforming health systems. For example, in 1998, a number of community health centers undertook a diabetes quality improvement initiative as part of the federal Bureau of Primary Health Care's *Health Disparities Collaborative*. The initiative is based on rapid plan-do-study-act cycles from the continuous quality improvement field, the chronic care model, and collaborative learning sessions. A study of this effort concluded that this initiative "led to significant improvement in diabetes care in one year as assessed through chart review" (Chin et al. 2004).

Building on this success, the Physicians' Foundation for Health Systems Excellence recently awarded the California Academy of Family Physicians Foundation \$500,000 for a *New Directions in Diabetes Care Initiative*. This effort seeks to improve quality and cultural competence of diabetes care delivered in small family medicine and primary care practices through a statewide effort in partnership with the California Medical Association Foundation. The project also plans to use what is learned to expand techniques for managing patients with other chronic diseases. They will create in-person learning and virtual training experiences for 15 to 20 teams from family medicine small group practices around the state. They will also conduct additional learning groups in three California counties focused on achieving significant improvements in patients with diabetes, including reducing high cholesterol and elevated blood pressure. The trainings will assist primary care physicians and their team members in addressing the racial and ethnic health disparities associated with Type 2 diabetes and obesity; and encourage them to adopt office process redesign features, such as patient registries, electronic health records, and team-based care, to improve the care they provide.

SOURCES

American Diabetes Association, *Diabetes Statistics Fact Sheet* (Alexandria, VA, 2005).

Chin, Marshall, Sandy Cook, Melinda Drum, et al. "Improving Diabetes Care in Midwest Community Health Centers with the Health Disparities Collaborative," *Diabetes Care*, 27:2-8, January 2004.

National Diabetes Information Clearinghouse, *Your Guide to Diabetes: Type 1 and Type 2* (Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases, 2005).

Mokdad, Ali H., Earl S. Ford, Barbara A. Bowman, et al. "Prevalence of Obesity, Diabetes, and Obesity-Related Health Risk Factors, 2001." *Journal of the American Medical Association*, 2003, 289:76-79.