Bristol-Myers Squibb Foundation

Together ON Diabetes™

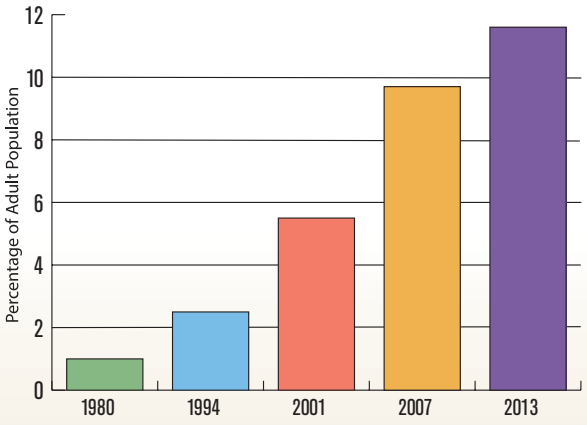
Communities Uniting to Meet the Challenge of Diabetes
in the United States, China and India

2013 Annual Report

Bristol-Myers Squibb
Foundation

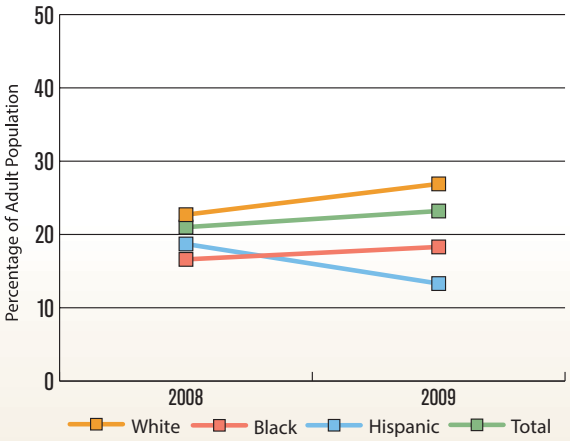
INEQUITIES IN DIABETES

Rise in Diabetes Prevalence in China



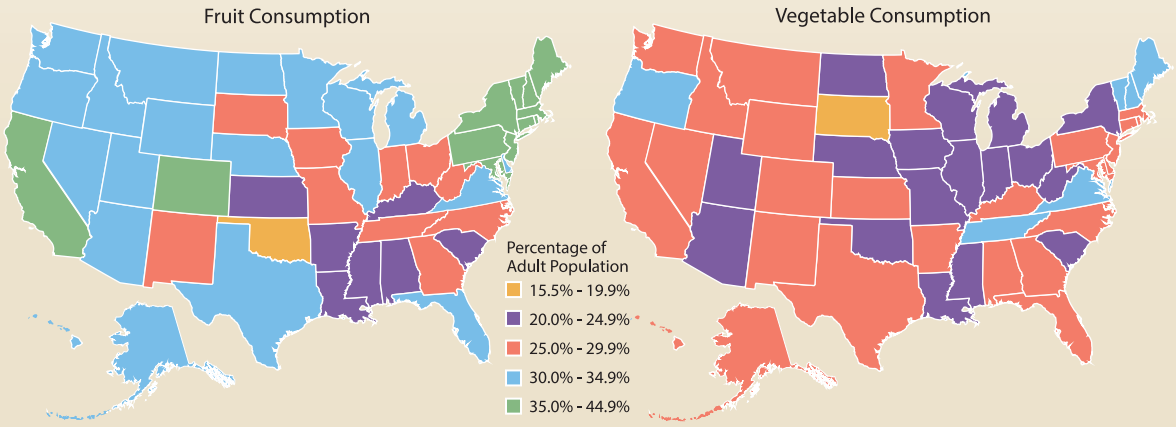
Data Source: Yu Xu, et al. Prevalence and Control of Diabetes in Chinese Adults. JAMA. 2013;310(9):948-959.

U.S. Adults Age 40 and Over with Diagnosed Diabetes who Reported Receiving the Four Recommended Diabetes Services



Source: Agency for Healthcare Research and Quality National Healthcare Disparities Report, 2012 and Medical Expenditure Panel Survey, 2008-2009.
Note: Four recommended annual services: two HbA1c tests, a foot examination, an eye examination and a flu shot.

U.S. Adult Daily Intake of Recommended Daily Fruits and Vegetables



Source: U.S. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System, 2009.
Note: Adults age 18 and over are recommended to eat two fruits and three vegetables daily.

ON THE COVER

Toney McGilberry, a mechanic from Durham, North Carolina, is working to manage his diabetes with the help of a nurse practitioner from the Duke *Together on Diabetes* project. The nurse practitioner visits him in his home or – if more convenient for him – at his auto repair business. At each visit, she monitors his blood glucose, reviews his medications and together they discuss healthy eating and physical activity goals and options.

A Message from the President

The global diabetes epidemic carries with it a particularly complex set of health inequities. There are inequities among populations experiencing high prevalence and poor outcomes; inequities in access to quality medical care, treatment and support; and inequities in the health environments and self-management resources surrounding people living with diabetes. The massive scale and chronic nature of diabetes exacerbate these inequities and require that strategies to address them be broad-based and durable and span clinic, community and home settings.

As the Bristol-Myers Squibb Foundation's *Together on Diabetes* initiative marks its third anniversary, we are proud of the innovations and impact that our grantees are having on diabetes in their communities. Whether in China, India or the United States, they are all pursuing integrated and scalable approaches to achieve equitable and optimal diabetes outcomes. And they are doing so in partnership with people living with diabetes and a creative cadre of public and private sector organizations.

Over the past year, new partnerships have been created to comprehensively approach diabetes at the neighborhood level in China, mobilize rural health promoters in India and integrate behavioral and mental health care providers into diabetes care models in the U.S. With the overall initiative and individual grants maturing and generating results, the Foundation and grantees have also sought new strategic partnerships to share lessons learned. For example, in the U.S., the *Morehouse School of Medicine/Bristol-Myers Squibb Foundation Partnership for Equity in Diabetes* at the National Center for Primary Care was created so that stories, tools and lessons from completed grantee projects and other innovative efforts across the country can be made easily accessible to the broader diabetes, primary care, health policy and health equity communities of practice.

Our third annual report provides an update on the initiative's grantmaking and features stories about transformations in the diabetes response taking place at the patient, practice and community levels. The report also summarizes the impact of five grants focused on African American women from the first national request for proposals issued by *Together on Diabetes* in November 2010 and captures encouraging successes emerging from grantee projects in all three target countries.

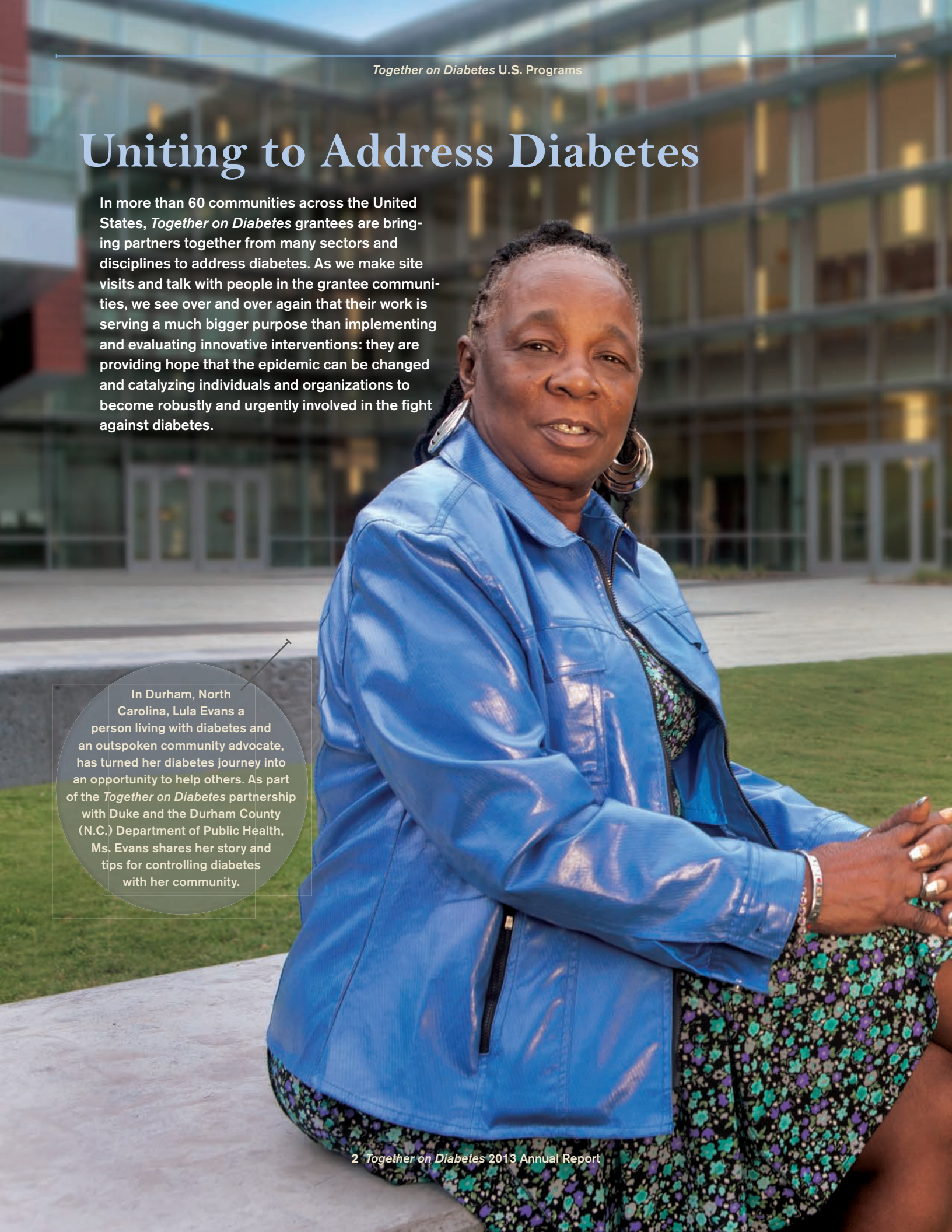
The U.S. initiative has committed more than $53 million to 25 grantees working in more than 60 communities. The China and India initiative has committed $4.4 million to 9 grantees with broad networks to reach, educate, serve and mobilize people and communities heavily affected by diabetes.

Much work certainly lies ahead, but I sense that with the growing awareness of the scale of the epidemic and the human and economic costs, we are almost at a tipping point where understanding, urgency, commitment and action are about to converge and together we can begin to make strides against the global diabetes challenge.

John Damonti
President, Bristol-Myers Squibb Foundation
Vice President, Corporate Philanthropy, Bristol-Myers Squibb

Uniting to Address Diabetes

In more than 60 communities across the United States, *Together on Diabetes* grantees are bringing partners together from many sectors and disciplines to address diabetes. As we make site visits and talk with people in the grantee communities, we see over and over again that their work is serving a much bigger purpose than implementing and evaluating innovative interventions: they are providing hope that the epidemic can be changed and catalyzing individuals and organizations to become robustly and urgently involved in the fight against diabetes.



In Durham, North Carolina, Lula Evans a person living with diabetes and an outspoken community advocate, has turned her diabetes journey into an opportunity to help others. As part of the *Together on Diabetes* partnership with Duke and the Durham County (N.C.) Department of Public Health, Ms. Evans shares her story and tips for controlling diabetes with her community.

Duke University Medical Center

Combining High-Tech Mapping with Knowledge of the Neighborhood to Target Diabetes

When Lula Evans attended a health fair in November 2012 that was organized by the Durham (N.C.) Diabetes Coalition (DDC) at Ebenezer Missionary Baptist Church, her family and her health were on her mind. Several relatives had been diagnosed with type 2 diabetes and Ms. Evans was concerned about her unquenchable thirst, frequent need to urinate and increasing fatigue – all symptoms of the disease.

During the screening, Ms. Evans' HbA1c level, a measure of glucose in the blood, was 14 percent, well above the 6.5 percent threshold for a type 2 diabetes diagnosis.

At the health fair, Susan Spratt, M.D., director of Diabetes Services at Duke University Health System and physician lead for the DDC, gave Ms. Evans a glucometer and a prescription for diabetes medication and worked with her over several months to design a treatment regimen that focused on ways to effectively self-manage the disease. Today, a year later, Ms. Evans is pleased that her efforts to get more exercise, eat healthier foods and adhere to her medication regimen have lowered her HbA1c level to 6.5 percent.

Health fairs cast a wide net with the hope of identifying and treating patients who may not have access to health care. However, the fair Ms. Evans attended was specifically targeted to her neighborhood, which has a high concentration of people who are at risk of developing type 2 diabetes and best reached through community-based interventions.

Her neighborhood was identified by a geospatial mapping system. The system was developed by Duke's Schools of Environment and Medicine and enhanced in conjunction with the University of Michigan's School of Natural Resources and the Environment. It is applied through the DDC – an alliance with Durham County Public Health and a range of community and faith-based organizations. Their efforts are supported by a five-year *Together on Diabetes* grant.

Now in its second year, the geospatial mapping project not only has changed the dynamic of how to mobilize a community around an epidemic, but also is introducing a new paradigm for prevention.

Patients who live in areas identified to be in most need often face significant barriers to health care. Once such an area is identified and community partners have been consulted for their knowledge of the neighborhood, DDC calls in trained clinical care teams and community health integrators to provide resources and services within the targeted communities. In addition to community events such as health fairs, the DDC's clinical teams provide home visits for Durham County residents living with type 2 diabetes.

"The real strength of this project comes from marrying high-end, state-of-the-art geospatial health informatics with tailored interventions and community engagement that meets people where they live," says Marie Lynn Miranda, M.D., professor and dean, School of Natural Resources and Environment, University of Michigan. "Combining those two things is allowing us to gain some ground in the fight against diabetes."

The project continues to evolve and has exciting potential to identify patients at all levels of risk.

"Two years ago, we determined who was considered at risk based on anecdotal experience. Today, we use a risk algorithm that analyzes secondary health data to identify both high-risk and moderate-risk patients," Dr. Spratt says.

The risk algorithm predicts the probability that a patient will have a serious outcome in the next year based on a number of factors: other medical conditions, lifestyle, insurance and lab data, and social environment. That takes the guesswork out of the equation for physicians when it comes to determining patient risk. Using secondary data, the analysis can also identify undiagnosed diabetes.

Duke successfully applied for a Centers for Medicare and Medicaid Services Health Innovation Award and received $9.7 million in additional funding to implement and replicate the approach outside Durham County. Efforts are underway to implement it in Quitman County, Mississippi, and Mingo County, West Virginia, in collaboration with two other recipients of *Together on Diabetes* grants, as well as in Cabarrus County, North Carolina.

"Diabetes continues to be a major cause of death and disability," says Robert Califf, M.D., vice chancellor for Clinical Research, Duke Translational Medicine Institute. "A big challenge has been in the area of implementing changes at both the individual and community levels to reduce risk factors and improve quality of care. We have high hopes that this comprehensive approach will be successful in turning the tide, leading to healthier communities with less diabetes and better outcomes for those who already have diabetes."

Feeding America

Helping People with Food Insecurity Eat Healthy and Manage their Type 2 Diabetes

Adults who are "food insecure" because of poverty or because they live in a "food desert" where healthy foods are scarce – are twice as likely to develop type 2 diabetes compared to adults who have good access to healthy foods.

For those who suffer from a medical condition such as type 2 diabetes, food insecurity often leads to inadequate nutrition, which can directly impact their ability to maintain their health. Eating healthy in the face of food insecurity can be difficult and, for those trying to survive from day to day, diabetes is often the least of their worries.

When hard times hit retired Corpus Christi police dispatcher Becky Pena, 54, her neighbor suggested she visit the Food Bank of Corpus Christi for help. Ms. Pena was concerned about eating a healthy diet, especially since she was having trouble controlling her diabetes.

The Food Bank of Corpus Christi is one of three food banks that are working with **Feeding America** – the largest hunger relief organization in the United States – to pilot a three-year project to identify people with diabetes who rely on food pantries, provide them with healthy foods and educational information about nutrition and diabetes, and connect them with health care providers.

More than 1,600 people are participating in programs at the Food Bank of Corpus Christi, where the program was inspired, as well as at the Redwood Empire Food Bank in Santa Rosa, California, and Mid-Ohio Foodbank in Columbus, Ohio.

When Ms. Pena started the Feeding America program, her HbA1c level (a blood-sugar measure) was 7.7 percent. After three months of receiving diabetes-friendly food boxes and education, she had lowered it to 6.3 percent. "The literature in the food box reminded me how important it is to eat properly and manage my own disease," she says. "It made me realize what I needed to do to keep my diabetes under control."

Although final results are not in, interim reports like Ms. Pena's are encouraging. Moreover, they are informing the program model that eventually will be shared with all 200 of Feeding America's member food banks. "We will be able to tell food banks, regardless of where they're located, that by partnering with health care providers and making certain foods and education available to a client with diabetes, they can play a vital role in helping clients improve their health," says Kim Prendergast, M.S., R.D., consulting project manager for the Feeding America Diabetes Initiative.

The program starts when a food bank identifies a neighborhood to target, one with a high number of uninsured people as well as a high number of people who use a hospital emergency room as a medical home. Food bank staff and volunteers offer diabetes testing and those who have diabetes may sign up to participate in the six-month program and receive a monthly box of food specifically for people living with diabetes: 100% whole grain breads, lean dairy and meats, and fresh fruits and vegetables. The box also includes educational materials and recipes for preparing some of the ingredients in the box. Additionally, those clients who need help accessing insurance and finding a doctor are referred to the food bank's local health care partners.

"We wanted to provide healthier food options for people with diabetes," says Georgiana Bradshaw, R.N., C.D.E., director of the Food Bank of Corpus Christi's *Diabetes Hands On* program. "It's not special foods, it's healthy foods. Through this grant, we have been able to show people that this is what everyone needs to be eating."

Clients take a survey at the beginning of the program and have their baseline HbA1c levels taken to give them an idea of how they are managing their diabetes. Diabetes classes and cooking classes are offered during the program and an educational video streams during visits to the food pantries to reinforce the important concepts of healthy eating and diabetes management.

"By the end of the program, we have a good sense of their health status, what they're eating, changes in their fruit and vegetable intake from the start to the completion of the program and also their level of diabetes distress and whether they feel better equipped to manage the disease," Ms. Prendergast says.

A major focus of the project was on creating bi-directional partnerships among the food banks and a network of clinics and other health care providers in their areas: the food banks refer patients for medical care and the medical practices connect patients who are diabetic and food insecure to the food banks.

Lisa Blair, M.D., a physician at the Timon's Ministry Clinic in Corpus Christi, which refers many patients to the Food Bank, says the food boxes make it very clear what patients should eat to help control their diabetes. "It's a generous supply of nutrient-rich food and it helps guide patients on what to eat even when they move out of the program," she says.

"Education and individual efforts are essential to changing health outcomes for people with food insecurity issues who also have diabetes. These health care partnerships play an integral role. Public health, the health community and the food banks are connected now, and that's an exciting aspect to what we're doing," Ms. Prendergast says.

Georgiana Bradshaw, R.N., C.D.E., (center) and Kate Hilliard, M.S., R.D., (left) review a self-management log with Becky Pena after a diabetes education class and food distribution at Wesley United Methodist Church as part of Feeding America's innovative pilot to involve food banks and pantries in diabetes screening, care and support.

Key Program Successes

Despite the many challenges that the U.S. diabetes epidemic poses to prevention and control efforts, *Together on Diabetes* grantees are making headway one patient, one family, one neighborhood, one community at a time. Successes in the program come in many forms. Sometimes success is proving that a new model of care is effective. Sometimes it is creating a process to powerfully integrate clinic- and community-based care and support. Sometimes it is achieving meaningful improvements in health outcomes. Where the grantees are always succeeding is in their commitment to health equity and staying focused on the needs as well as the strengths and resiliencies of heavily burdened populations.

Marie Gravely, a certified diabetes educator with Marshall University (left), teaches a person living with diabetes how to make healthy food choices on a budget at a local grocery store in Williamson, West Virginia. The Mingo County Diabetes Coalition is one of 10 in the Appalachian Region to receive funding and technical assistance to deliver evidence-based community diabetes programs under Marshall University's *Together on Diabetes* grant.

Communities Meeting the Challenge of Diabetes: Sharing Results and Successes

As the *Together on Diabetes* grants mature, our grantees are reporting important transformations and results at the patient, practice and community levels. Our evaluation and quality improvement partner, the **Work Group for Community Health and Development at University of Kansas** has played a critical role in helping each grantee define indicators and centrally capture information about their efforts to address equity, build community capacity and support self-management behavior change. Here are some key interim results, aggregated across the grantees:

55 Communities expanded diabetes self-management programs for disparity populations

25,000 People living with type 2 diabetes served directly through grantee programs

541 Nonprofit and government partner organizations mobilized to fight type 2 diabetes at the community level

Up to 2.1% Average reduction in reported HbA1c levels for patients at program implementation sites to date

At the individual grant level, there are powerful success stories and results to share for the core aspects of the overall initiative.

Outreach and Patient Engagement

United Hospital Fund's (UHF) project in New York City's Washington Heights neighborhood focuses on engaging largely Dominican seniors living with diabetes in self-management education (DSME) while also linking them to resources for healthy eating and active living. After some initial difficulty enrolling the target 1,200 patients in the demonstration project, UHF changed its approach from physician and senior center referrals to neighborhood-based outreach using "community street teams." These teams were deployed to grocery stores, pharmacies and churches to directly engage seniors. Using this revised approach, UHF increased enrollment from 400 in the first 12 months of the project to 1,286 in the last nine months. Among this group, 524 have participated in DSME.

The **Sixteenth Street Community Health Center** in Milwaukee, Wisconsin, is identifying and re-engaging patients who have a diabetes diagnosis but have fallen out of care. Sixteenth Street not only developed an outreach and re-engagement protocol but also examined and addressed the different barriers to care that need addressing by the health system, agency and patient. In the first six months of the project, 503 patients were identified and reached through community health worker calls, letters and home visits and then reengaged in care.

Improving Clinical Outcomes

American Pharmacist Association Foundation recently completed a three-year project to implement an evidence-based practice of pharmacist coaches called the Asheville Model in 25 high-need communities across the U.S. The clinical outcomes were impressive with an average HbA1c drop of 0.8%. Interestingly, among those patients who were assessed at the outset as being at the "beginner" level for disease and self-management understanding, the gains were even greater with an average drop of 1.2% in HbA1c.

In Camden, New Jersey, the **Camden Coalition of Healthcare Providers** saw HbA1c levels among high utilizers of health care services and high-risk patients served by their project drop significantly – from 10.8% on average at the start to 9.4% at the six-month assessment. They also were able to cut hospital admissions for this group from 13 prior to the intervention to two at the six-month assessment. This was achieved by locating diabetes care managers in primary care clinics to help patients navigate needed services and engage the patients in DSME classes offered in community settings such as community centers and churches.

Self-Management Education and Support

The **National Council on Aging** (NCOA), **Peers for Progress** (PFP) and the **American Association of Diabetes Educators** (AADE) have each expanded access to DSME and support through innovative strategies. NCOA has partnered in Atlanta and St. Louis with the YMCA and OASIS, a network of senior centers, to offer DSME to more than 350 Medicare-eligible seniors through community-based group classes and online classes. PFP and the National Council of La Raza successfully launched a *Compañeros en Salud* service for more than 4,000 diabetics in care at Alivio Community Health Center in Chicago. The program provides culturally competent care navigation, emotional support and disease management education through lay peers.

Community Supportive Services and Mobilization

In Appalachia, **Marshall University,** working in partnership with the Centers for Disease Control and Prevention and the Appalachian Regional Commission, has provided technical assistance and minigrants to 10 community diabetes coalitions to develop community resources for healthy eating and active living so that patients can more easily put into practice what they are learning in diabetes self-management programs. The STEP Diabetes Coalition in Graham County, North Carolina, significantly increased "walkability" by engaging people living with diabetes, as well as schools, the Graham County Health Department, U.S. Forest Service, the Eastern Band of Cherokee Indians, the Town of Robbinsville and town planning experts to build and improve walking paths and trails and to increase their use. In West Virginia, the Mingo County Diabetes Coalition increased access to healthy foods by collaborating with local businesses and government, health departments and economic development agencies to create a weekly farmer's market, cooperative orchard, community garden and walking programs.



Reflecting on the Impact of the African American Women Grants

One of the *Together On Diabetes* core strategies for promoting innovative solutions for health equity is focusing on high-risk, high-disease burden populations.

Because African American women represent one of the highest-risk groups for type 2 diabetes, this population was the focus of *Together on Diabetes*' first national request for proposals (RFP) in November 2010.

The RFP took a strengths-based approach to African American women, seeking to bring their resilience, spiritual and cultural traditions, and social bonds to bear on diabetes. The objective was to encourage, identify and promote culturally competent and evidence-based approaches to empowering African American women to improve control of their diabetes while also taking into account the opportunity they have to model self-management behaviors, impart knowledge and positively impact the health of their families and communities.

Five organizations were selected (from among more than 180 applications) to receive $300,000, two-year grants: **Black Women's Health Imperative** (Washington, D.C.), **East Carolina University** (Greenville, North Carolina), **University of Virginia** (Charlottesville), **United Neighborhood Health Services** (Nashville, Tennessee) and **Whittier Street Health Center** (Roxbury, Massachusetts). Over the past two years, these grantees developed, adapted and implemented a range of effective community-based models of patient engagement, diabetes self-management education (DSME) and community support. Their projects not only served African American women but also engaged them to advise and inform the interventions prior to their implementation through advisory boards and focus groups and to deliver interventions as community health workers and mobilizers.

In several projects, the patients themselves undertook efforts to help their communities. In Williamston, North Carolina, for example, Margaret Askew (pictured above, far left) secured a classroom in her school building so that the project participants could meet as a support group on the weeks when they were not having formal DSME with their Community Health Ambassador. In Charlottesville, the women in the University of Virginia project helped create and were featured in a video to promote "10,000 Steps," which is now part of a Move2Health campaign in Albemarle County.

Each project undertook intense patient engagement efforts and provided DSME. The supportive interventions ranged from using text messaging to send affirmations and self-management behavior reminders and reaching affected women through partnerships with women empowerment organizations, shelters, churches and housing developments to incorporating a fitness professional into the clinical team to work one-on-one with women on increasing physical activity and training and deploying community health workers as health coaches and resource navigators.

Each grantee tracked the impact of these models on clinical outcomes and self-management behaviors as well as program goals. Key results include:

1,458 Number of African American women reached with services (goal was 750)

7.1% - >10% Range of HbA1c at baseline

0.5% - 1% Range of average improvement in reported HbA1c across projects

38 Community health workers trained

✓ All of the projects expanded access to DSME by offering it in clinic and community settings

✓ All the projects incorporated social support into DSME

✓ All of the projects improved linkage to community supportive services and resources for healthy living

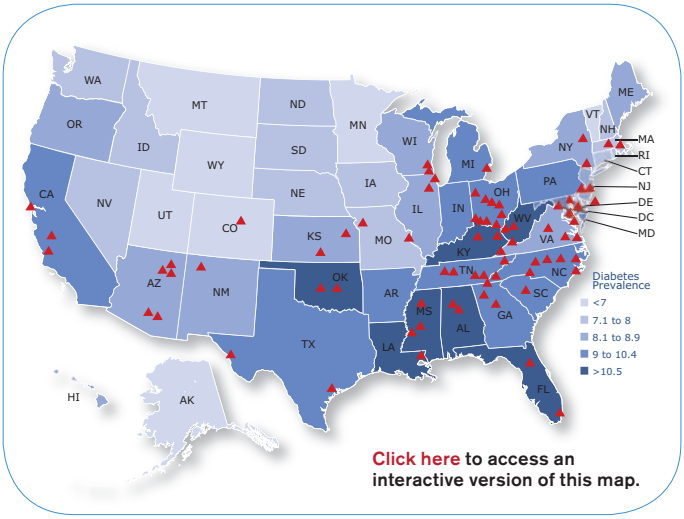
The real impact is perhaps best revealed through the voices an African American woman served by and serving in one of these innovative projects:

"As a patient with diabetes for the past 20 years, I have come to understand that managing diabetes takes a lot of personal efforts and discipline. Working as an ambassador with the Together on Diabetes *program helped me reach out to other members of my community struggling to live a healthy life and going through the doors of emergency rooms as a result of an acute complication of the disease. Now, I regularly teach members of my community and church about diabetes.*"

– Linda, Community Health Ambassador, Whittier Street Health Center

New U.S. Partners and Projects

During 2013, *Together on Diabetes* awarded new grants and provided supplemental funding to existing grants in the United States to promote health equity and improve health outcomes for adults living with type 2 diabetes by advancing replicable and sustainable community-based solutions.



Click here to access an interactive version of this map.

NEW GRANTS

Depression, Distress and Diabetes

Type 2 diabetes and depression is a common co-morbidity associated with poorly controlled diabetes and suboptimal outcomes. The daily demands of managing diabetes can be overwhelming and take a toll on an individual's mental and emotional health. Diabetes care models and self-management programs that help patients manage these conditions together can improve well-being, quality of life and health outcomes.

Together on Diabetes awarded $450,000, three-year grants to the following organizations to develop and implement programs to address the management of diabetes, depression and distress: **East Carolina University** (Greenville, North Carolina), **Health Choice Network of Florida** (Miami, Florida), **Regents of the University of Michigan** (Ann Arbor, Michigan), and **University of Colorado-Denver**.

Dissemination and Replication

Morehouse School of Medicine received a five-year, $2.1 million grant from *Together on Diabetes* to create the *Morehouse School of Medicine/ Bristol-Myers Squibb Foundation Partnership for Equity in Diabetes*. The partnership will share successful models and best practices emerging from *Together on Diabetes* and other innovative programs with the broader community health, public health and primary care practice communities.

Coordinating Self-Management

American Association of Diabetes Educators received a $2.25 million, four-year grant to design and test a culturally appropriate and replicable diabetes self-management program at community health centers. The pilot will employ two interwoven strategies: a coordinated care model of diabetes self-management education (DSME) and ongoing support services delivered by a multi-level team of professional and lay health care workers.

SUPPLEMENTAL GRANTS

Changing Diabetes in the Delta

Mississippi Public Health Institute received a $2.68 million, 3½-year grant to pilot a Patient-Centered Medical Home (PCMH) model for Medicaid patients who have type 2 diabetes in Mississippi's Delta Region.

Using findings from assessments of patients, caregivers, health care providers, community leaders and policy makers that were funded by a 2011 *Together on Diabetes* grant, the institute will expand access to DSME in Holmes and Attala counties, mobilize these communities to increase access to and use of healthy eating and active living resources, and promote policy changes by demonstrating the positive impact the PCMH model can have on health care costs and outcomes.

Understanding the Impact of Care Innovations on Health Care Costs

Johns Hopkins Center for American Indian Health (JHCAIH) received $1.29 million to continue its work pioneering public health innovations in four tribal communities in the Southwest. Since 2011, JHCAIH has been working with 250 families to adapt a family health coach model for diabetes that provides at-risk children and their families with medical care coordination and culturally competent home-based DSME. The new grant will help JHCAIH evaluate the success of these efforts and support a health economics analysis of the family health coach intervention.

Supporting the Grantee Network and Advancing Policy

National Network of Public Health Institutes (NNPHI)received $216,127 to develop and host a two-day grantee summit in 2014 and support the learning collaborative for *Together on Diabetes* grantees. NNPHI also will continue to leverage its expertise and network to inform the annual summit and learning community activities, provide leadership and professional development opportunities for grantees and enhance relationships between grantees and the broader public health practice community.

Harvard Law School Center for Health Law and Policy Innovation received $91,324 to expand its efforts to research best practices, develop state and federal level policy recommendations for comprehensive diabetes care and support and provide policy and advocacy technical assistance to grantees.

Focusing on Health Equity

Changing lifestyles, low levels of disease awareness and prevention education and poor access to treatment are contributing to the growing prevalence of type 2 diabetes in China and India, the world's two most populous nations.

Together these countries account for more than 40 percent of confirmed type 2 diabetes cases worldwide: more than 114 million in China and more than 61 million in India.

Millions more are undiagnosed. In fact, the International Diabetes Federation estimates that globally as many as half of the people living with diabetes are unaware of their condition.

The prevalence of diabetes in India has grown roughly four-fold since the early 1970s – from about 2 percent of the population in 1972 to 8.3 percent today – due to factors ranging from genetic predisposition to lifestyle and dietary changes. *Together on Diabetes* is working with five leading health care organizations in India to improve diabetes education, prevention and care and increase health care worker capacity in rural and tribal areas and among the urban poor.

MAMTA Health Institute for Mother and Child

Lay Community Volunteers Offer a Ray of Hope for Health in Southeastern India

Venkateswarao Rao, a day laborer by trade, has long been an active community health volunteer in his village in Andhra Pradesh, India. Mr. Rao, 34, is an Arogya Kiran – in Hindi, literally a "ray of hope for health" – for the 5,000 people in his village's subcenter. (Photo, Page 15)

Mr. Rao goes from house to house providing information to people living with type 2 diabetes to help them better adhere to their medication regimen and sometimes refers them to a larger health center for additional care.

"I have an interest in serving society and feel I have a social responsibility to serving my community," says Mr. Rao, one of 600 community volunteers in Andhra Pradesh who have been trained by **MAMTA Health Institute for Mother and Child** as part of a pilot intervention supported by *Together on Diabetes*. "Some of my relatives and neighbors are affected with diabetes and hypertension and I wanted to support them.

"I talk to decision makers in the family – often the women – about healthier food habits," he adds.

Andhra Pradesh is one of India's largest states. Each village has subcenters whose most basic health needs are provided by a midwife, a male health worker and five health educators. Volunteers like Mr. Rao supplement their efforts.

MAMTA, a national organization based in New Delhi and operating in 14 Indian states, recognizes there are gaps and disparities in that support network and seeks to develop a community-based model to more effectively address them. In particular, MAMTA is working to raise awareness about a growing tide of type 2 diabetes cases and ensure appropriate treatments are available to help India's vast rural population effectively prevent and manage the disease.

"We wanted to train both male and female community volunteers to serve as a bridge between the community and the government health system," says Dr. Ruchi Sogarwal, MAMTA's project director. "We decided we needed to do a better job to screen families within the village for diabetes and related non-communicable diseases, refer them to medical professionals and help them change their lifestyles to prevent problems or better manage their health."

The project's village surveys also found that those under treatment were not receiving adequate community-based support so that they would adhere to treatments and follow healthier lifestyles.

The Arogya Kiran are not only trained in diabetes and hypertension prevention and aspects of maternal health, but also learn the importance of identifying "influencers" in the village and in individual households who could help effect change, especially in diet, exercise and other health-related habits.

Dr. Sogarwal says the widespread use of tobacco, especially chewing tobacco by men, and the use of ghutka – an addictive mild stimulant that mixes crushed betel nuts and chewing tobacco – by women, are significant challenges. The impoverished population uses too much oil in their cooking and too few vegetables (about 60 percent of those surveyed by the project had eaten vegetables only once in the previous month). Also, only about 10 percent get any regular exercise.

"All these influence the high rates of hypertension and diabetes in this region," she adds. "Our other big challenge was to integrate an understanding of both modern medical practices and traditional AYUSH (an ancient holistic healing system) practices into our Arogya Kiran training, something that has never been attempted."

In Andhra Pradesh villages, about half of those suffering from hypertension or high glucose levels seek help from traditional AYUSH practitioners, Dr. Sogarwal notes, "so it is important, even if it is challenging, to integrate both medical practices into our treatment and community-based awareness methods."

Another Arogya Kiran, M. Chennamma, says: "In these villages 20 percent of the men and women suffer from hypertension and diabetes." From her perspective, the main risk factors are chewing tobacco and ghutka as well as alcohol consumption.

She recently identified a young woman who chewed ghutka five to six times a day, with blood pressure and glucose levels dangerously elevated. With Ms. Chennamma's help, the young woman went to a district hospital for treatment, and has stopped using ghutka and eating sweets. She is better controlling her weight and getting regular checkups.

"Although the government is trying very hard, we have found among the population only a limited understanding about diabetes, what causes it, how to treat it and what may prevent it," Dr. Sogarwal says. "That's because we have been operating on an acute care model for too long and it is time, from a community perspective, to create a continuum of care approach. Arogya Kiran fit perfectly into that model."

Chinese Center for Disease Control and Prevention

Preventing and Controlling Type 2 Diabetes in Rural China

While the prevalence of type 2 diabetes in China is a growing concern, the issue takes on even greater urgency in the vast rural areas where nearly half of China's 1.3 billion people live.

Nearly one in 12 adults in rural China has type 2 diabetes and the prevalence is increasing at a faster pace than in urban areas. Rural areas are less well-equipped to cope. They have far fewer resources to prevent or manage the disease and often offer less-effective treatment options due to cost. A scarcity of rural health care providers and a poorer population whose growing medical expenses further exacerbate their poverty compound these challenges.

"We need to develop effective and comprehensive measures including diet, exercise, weight control, blood pressure and glucose management to improve the quality of a patient's life and reduce the financial burden of the whole society," says Wang Linhong, executive deputy director of the National Center for Chronic and Non-Communicable Disease Control and Prevention at the **Chinese Center for Disease Control and Prevention (China CDC)**.

A project supported with a three-year grant from *Together on Diabetes* aims to do just that with a two-pronged model program both to build rural health care capacity and to empower patients for more effective disease self-management.

The demonstration project focuses on villages and townships in Shanxi Province and Chongqing Municipality in western and central China, including the Dazu District. Dazu, located in the western part of Chongqing, has a population of about 1 million and encompasses 24 townships and three urban neighborhoods.

Wang Erxiang, a 71-year-old retiree who has lived with diabetes for more than 17 years, is among those who hope to benefit from the China CDC project. He used to be a member of a diabetes patient club at the local People's Hospital, but the club stopped meeting, so he lost contact with others in similar circumstances.

Mr. Wang knows he needs help managing his diabetes and believes the China CDC program will help. Managing blood sugar levels is important because, when left untreated, high blood sugar levels can lead to diabetic complications such as damage to the eyes, nerves and limbs.

When Mr. Wang recently had his blood sugar levels tested, they were nearly 50 percent higher than an earlier test.

"Yesterday, I enjoyed a dinner party, but didn't take my insulin injection," he says, noting that the twice-daily insulin injections consume about 10 percent of his monthly retirement income.

"I believe this program will help me do a better job of managing my blood sugar through regular doctor visits and follow-up education and intervention. I also hope to share my experiences with other patients."

Madame Guo, a 61-year-old housewife who was diagnosed with type 2 diabetes six years ago, has had a hard time consistently controlling her blood sugar levels. She also believes better education about self-management could help. "Whenever I found my blood sugar returning to normal, I would reduce the amount of the medicine I was taking. If it went up, I would take more." The China CDC program's community health workers advise her to seek professional assistance before altering doses.

More also must be done to expand health care capacity in the district. While Dazu has about 2,200 health care providers, only four community health workers focus directly on non-communicable disease management, especially diabetes. Yet about 34 percent of adults in the district suffer from high blood pressure, one-third are overweight and nearly 12 percent are obese. What's more, while the local health system has identified about 65,000 patients with diabetes, less than 20,000 are receiving any kind of medical treatment. Of those, only about one-third admit that they regularly exercise, are careful with their diet and take their medicines.

"Our hospital already uses every opportunity to create greater diabetes awareness," says Zhong Caineng, director of a hospital in Dazu's Baoding Township. "Our doctors visit patients at home if they don't seem to be following instructions, we promote diabetes knowledge when patients come in for immunizations and we instruct health care providers about offering diabetes consultations during regular visits to villages."

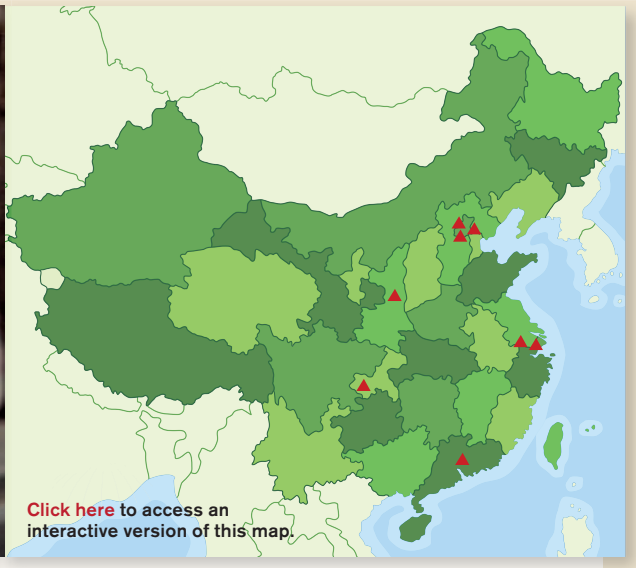
But there are additional challenges that he hopes the Bristol-Myers Squibb Foundation grant will help him address. "The older people often are not open-minded," he says. "They are reluctant to attend diabetes screenings and other activities, partly because of their educational background."

Mr. Zhong also points to a need for more support from local government community workers or cadres. "Currently health management is not included in their regular work, but we need them to help motivate the involvement of villagers because they are much closer to them," he adds. "In addition, some cadres have no training in health management. We have to change that."

Changing villager lifestyles won't be easy, however. "The key for diabetes management is to ask people to eat healthy foods," he says. "But when they start making more money, the first thing they do is eat more meat. People also use too much oil when cooking spicy food. It is a tradition and difficult to change."

Together on Diabetes is working to enhance the capacity of rural health care providers to manage and prevent type 2 diabetes at the village level in Western China, where diabetes is growing faster than in China's cities and where rising medical costs are an important factor leading to poverty. The initiative also focuses on urban areas such as Beijing, Shanghai and Guangzhou. One in six (16 percent) of Shanghai's residents have diabetes, more than 6 percentage points above the national average.

Addressing Diabetes in China and India



Like other developing and industrialized countries, China and India face daunting challenges to stem the rising tide of type 2 diabetes. Changing lifestyles, health disparities, low levels of disease awareness and prevention education and poor access to treatment are contributing to the growing prevalence of diabetes in the world's most populous nations.

Working with government and NGO partners in China and India, *Together on Diabetes* is promoting health equity and improving health outcomes among people living with type 2 diabetes by supporting empowering solutions that address local needs.

CHINA

In China, for example, *Together on Diabetes* is working with the **Chinese Center for Disease Control and Prevention** on a three-year project to enhance the capacity of rural health care providers to manage and prevent type 2 diabetes at the village level in western and central China, where diabetes is growing at a faster rate than in China's cities.

China CDC's efforts in Chongqing and Shanxi Provinces focus on identifying high-risk rural populations and ensuring timely interventions to prevent disease onset. These interventions include health care provider training, disease screenings and patient education. China CDC also is mobilizing government and community leaders to prioritize diabetes disease management.

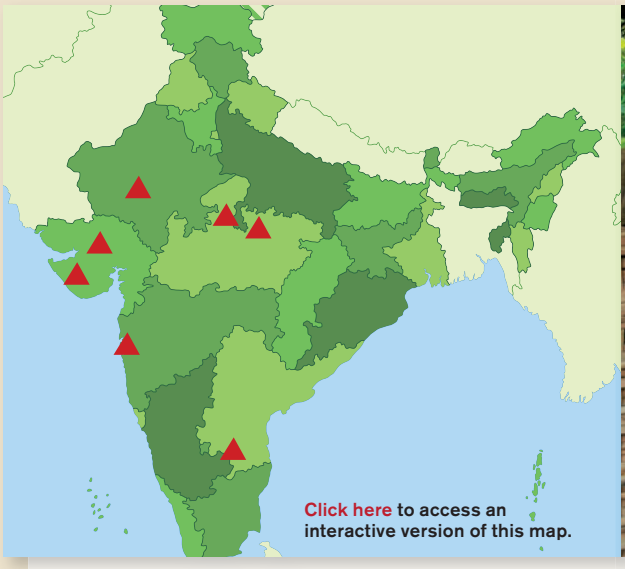
Primary care providers in rural settings are being trained to better communicate with patients about the need to prevent, treat and control diabetes consistent with national guidelines. Physicians also are leading patient self-management groups that discuss healthy living habits and diets. Handbooks on diabetes self-management are being provided to patients and health professionals and a diabetes education tool kit includes easy-to-use tools such as a body mass index and a glycemic index of common foods are being distributed to the general population and the food and hospitality industry.

Shanghai Charity Foundation's efforts in Shanghai, a city of 23 million people, focus on empowering the aged and the young and affluent in four lifestyle areas: eating healthy foods, getting regular exercise, eliminating smoking and alcohol consumption, and "keeping the mind peaceful."

Working with the Shanghai Center for Disease Control and the Shanghai Public Health Bureau in the city's Lianyang and Ruijin districts, Shanghai the foundation is leveraging existing management systems and technology to build, pilot and integrate a community-based model of disease prevention and management that can be deployed throughout Shanghai and other Chinese cities.

Technology is not only being used to measure, record and analyze patient health data but also to help people better manage their disease while on the go. The Shanghai foundation is working with Shanghai Kunhao Technology to develop mobile communications platforms for physicians and patients and Ruijin Hospital is serving as a technical support center for community doctor training and patient peer leader training.

The community health center in Lianyang is providing 12 free glucose tests a year to registered patients. About 6,000 people were screened by July 2013 and patient self-management support groups established in both Lianyang and Ruijin continue to grow as more diabetes patients are identified through expanded screening efforts.



In May 2013, the **Beijing Diabetes Prevention and Treatment Association** began a three-year project to pilot a peer support model for diabetes that integrates lifestyle modification skills with social and emotional support. Adapting the U.S.-developed Peers for Progress approach that employs peers who share similar experiences with a health problem, the model seeks to help patients better control their disease, lower the rate of diabetes complications and reduce the financial burden of the disease for both the government and individual families.

Also in May 2013, the **China Soong Ching Ling Foundation** began a three-year project to pilot a new family-centric model for diabetes management that promotes home and community-based education and interventions anchored by outreach teams at 15 hospitals in Beijing, Shanghai and Guangzhou. The project seeks to prevent complications and reduce the socio-economic burden of diabetes management for families and public health facilities by using the Internet and home visits to provide better tools for both physicians and individuals for family-based disease self-management.

INDIA

In Andhra Pradesh, **MAMTA Health Institute for Mother and Child** and its partner, Lepra Society, have trained 600 lay community health volunteers known as Arogya Kiran to provide diabetes risk-management education and family counseling for non-communicable diseases such as diabetes and hypertension. The volunteers are working in three districts encompassing about 600 villages.

The project is also linking patients to health care providers in order to promote healthy lifestyles, early detection and healthy behaviors.

The Arogya Kiran are also working on a mapping and screening exercise to gain a better understanding of the health status of each village while implementing various community interventions. School-based Arogya Kiran are working with 100 schools to raise awareness and provide health education and counseling on health topics, including diabetes and hypertension.

All India Institute of Diabetes and Research and the **Swasthya Diabetes Hospital** are working with the Indian Institute of Public Health on a two-year project called *Conquer Diabetes* to improve access to diabetes education, prevention and care for patients using public health centers in rural districts and tribal blocks and among the urban poor in Gujarat.

The project has trained nearly 80 public health care medical officers, including a number of AYUSH doctors, and more than 800 paramedical staff at primary care and urban health centers. These medical professionals provide care for 40,000 people.

The medical officers are using Skype for face-to-face communications with district or regional diabetes medical experts who can provide additional assistance as needed for individual cases. The project also is documenting the prevalence of diabetes in selected rural areas of Gujarat.

Sanjivani Health and Relief Committee is conducting a household-by-household study in about 350 villages in rural Gujarat to identify people with type 2 diabetes, hypertension and heart disease as part of a four-year project.

The project's eight mobile medical clinics visit as many as 13 villages a day and screenings are done at 14 centers across the region. Patients diagnosed with diabetes receive free medicines and are monitored regularly. Some

receive additional health workups to detect possible organ damage. About 100 patients – most of whom are poor – receive free diabetes screenings each week.

The project also has conducted about 126 "camps" – village-level events offering fasting blood glucose testing and patient counseling – with an average of 130 to 150 people screened at each camp. Special camps are being arranged for various demographic groups (children in schools, for example) to increase disease awareness.

United Way Mumbai Helpline is working on a two-year project to prevent, detect and manage type 2 diabetes among adults working in the informal sectors plus public health workers and public school teachers in Mumbai.

The project targets unorganized industry workers who have limited access to health care facilities due to their income or the nature of their employment. The project also targets public health workers and public school teachers who can influence children and their parents about diabetes.

United Way Mumbai Helpline is mobilizing Anganwadi workers who focus on maternal and child care to include diabetes education along with the health education and nutritional services they already provide. Anganwadi are health workers from the government-sponsored Integrated Child Development Scheme who work in various communities. The project expects to reach 2,000 Anganwadi workers, each of whom serves about 800 community members, 10,000 adult workers from informal sectors and 2,000 municipal school teachers in the city of Mumbai.

Testing camps for early detection also are planned.

A baseline survey of 74 villages in Jodhpur, Rajasthan, by **Humana People to People** found that about 70 percent of the 12,000 respondents had little knowledge of diabetes. Those who knew about diabetes learned about the disease because a family member is afflicted.

Humana is working on a two-year project to increase awareness of diabetes testing and control measures, improve nutrition and enhance existing health services through in-home testing, door-to-door outreach education and community activities that focus on healthy living. Humana has registered more than 115,000 people and helped more than 35,000 through individual and group visits. More than 5,000 people have been referred to health centers for additional screenings and treatment.

The project is using street plays based on local folklore and community support groups called TRIOs to overcome illiteracy and other obstacles among adults 40 and older. Each TRIO consists of a patient, family member and volunteer, who work together to help the patient manage their disease. In addition, 100 self-help groups involving more than 1,000 women focus on improving the dietary habits of women who cook for their families.

Grants and Partnerships

The mission of the Bristol-Myers Squibb Foundation is to promote health equity and improve the health outcomes of populations disproportionately affected by serious diseases and conditions by strengthening community-based health care worker capacity, integrating medical care and community-based supportive services and mobilizing communities in the fight against disease.

Together on Diabetes grant funding is awarded to nonprofit organizations through invited requests for proposals. The Bristol-Myers Squibb Foundation and *Together on Diabetes* also welcome and seek opportunities to join forces and resources with other foundations and charities, corporate social responsibility initiatives from diverse industries and government programs and agencies. For more information about the U.S. program, contact patricia.doykos@bms.com. For more information about the China and India program, contact phangisile.mtshali@bms.com.

For updates and to visit *Together on Diabetes* online go to www.togetherondiabetes.com

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