

February 2008

Diabetes Primary Prevention Initiative—Interventions Focus Area Case Study

Final Report

Prepared for

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RTI Project Number 0210088.003

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0210088.003

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EXECUTIVE SUMMARY

This document presents site-specific and cross-site findings for the Diabetes Primary Prevention Initiative Interventions Focus Area (DPPI-IFA) case study. DPPI-IFA is an initiative funded by the Centers for Disease Control and Prevention (CDC), with technical assistance by the Agency for Healthcare Research and Quality (AHRQ). The Interventions Focus Area (IFA), one of three of the Diabetes Primary Prevention Initiative (DPPI), funded five state Diabetes Prevention and Control Programs (DPCPs) (California, Massachusetts, Michigan, Minnesota, and Washington) to develop, implement, and disseminate a framework for statewide primary prevention programs targeting people with prediabetes.

In 2007, CDC and AHRQ contracted with RTI International (RTI) to develop a descriptive case study of the five states participating in the DPPI-IFA. Although the work of the IFA included a development phase that generated important guiding documents, the case study focused on state-level interventions. The purpose of the study was to describe the implementation of diabetes primary prevention programs in the five states, with an explicit intent to identify and disseminate lessons learned, resources, and tools to inform future efforts of CDC, additional DPCPs, and other stakeholders. Importantly, the case study is not intended to serve as a final evaluation of these efforts, because the site visits were conducted while states were still developing and implementing interventions. Data collection for the case study consisted primarily of an extensive document review and site visit interviews with DPCPs and their partners.

The following types of interventions were implemented in each state:

- The California DPCP is working with one primary partner, a health system, to conduct worksite screening and educational interventions in two distinct phases and with three separate employers.
- The Massachusetts DPCP worked with a local community-based nonprofit organization to design and implement a worksite screening and lifestyle change intervention. The intervention was then implemented with staff employed at a local manufacturing facility.
- The Michigan DPCP is conducting or participating in three separate interventions: a pilot program in a local health department Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) program implementing diabetes and prediabetes screening and an educational component for persons identified as at risk for prediabetes; a training program for Women, Infants, and Children (WIC) providers on gestational diabetes and development of nutrition care plans for these clients; and support for a regional diabetes initiative led by a health system and health plan.
- The Minnesota DPCP is working primarily in partnership with its statewide Steering Committee, and through that group an independent guideline-making body, to stimulate the development and release of prediabetes screening and treatment guidelines. A second intervention involved newspaper and television media to increase prediabetes awareness.

- The Washington DPCP provided funding for two distinct interventions. The first was a program of a rural hospital district in which a screening process for prediabetes was incorporated into an existing health risk assessment for county employees. The second intervention is a collaboration with REACH organizations in Seattle to conduct screenings in three community-based health clinics or organizations, all of which serve racial and ethnic minorities.

(Note: Since the case study data collection was completed, many states have implemented additional activities as a part of their DPPI-IFA efforts. These activities are not included in this summary but are described briefly in an appendix.)

ES.1 Key Findings

Partnerships. At the center of all DPPI-IFA activities is the identification of capable partners and the establishment and maintenance of strong partnerships. State DPCPs were very successful in recruiting a range of types of partners, including other health department programs, hospitals, employers, and a health plan. Most partners reported that the DPPI-IFA interventions were in line with their organizational priorities and direction and were a natural fit with their organizations' existing work. The relatively modest resources available appear to have been sufficient to facilitate the engagement of partners and the development of interventions.

Interventions. The five states implemented a variety of interventions in three main domains: diabetes primary prevention and prediabetes awareness, screening activities and lifestyle interventions, and diabetes-related health policy. Most of the five states implemented some type of clinical screening component for their DPPI-IFA intervention. For the most part, the DPCPs embraced the oral glucose tolerance test (OGTT) conducted in a provider's office as the diagnostic test of choice; however, states used various mechanisms to identify persons from the community at high risk and requiring screening. Interventions had varying degrees of connection to providers or clinics that conducted the diagnostic screening. Most of the screening interventions also offered lifestyle interventions for persons identified as having or at risk for prediabetes.

Nonclinical interventions include promoting the development of statewide screening and treatment guidelines and institutionalizing prediabetes screening into existing diabetes detection or treatment or other health promotion initiatives. Interventions also included a variety of provider or public awareness efforts that were at times, but not exclusively, linked to the community-based screening interventions.

Outcomes. All DPPI-IFA partners felt that their interventions were successful in at least one of the following areas: increasing awareness among health care providers, individuals at risk, and employers; building capacity to address prediabetes within health systems or organizations; establishing new or strengthened partnerships among key partners in the field of prediabetes; and changing individual behaviors specific to diet and physical activity.

Significant organizational or policy changes were evident within several interventions. Limitations in the size of the intervention groups and data availability preclude conclusions about the effectiveness of the screening interventions; however, for the two interventions that did have outcome results available, participants in the interventions achieved an appreciable percentage (3.6% to 4.3%) of weight loss.

Challenges. The DPCPs faced considerable challenges in planning, implementing, and evaluating their interventions. The greatest challenges were related to limited resources and a short timeline for planning and implementation. All interventions required more funding and resources than were distributed via the DPPI-IFA funding and tapped into in-kind contributions from their partners. Also, all of the DPCPs maneuvered within a tight timeline to develop and implement the interventions. This potentially reduced the effectiveness of participant recruitment efforts. It also may have contributed to the implementation of screening interventions without having a planned follow-up intervention available for those found to be at risk.

Another significant challenge for states that implemented a screening intervention was establishing a link with health care providers to achieve follow-up diagnostic testing and to obtain the results. Without these results, most interventions were not able to properly identify a group of persons with prediabetes and enroll them in an intervention. Thus, interventions included persons who had risk factors and not necessarily prediabetes.

Sustainability. DPPI-IFA efforts at the state and local levels built capacity to address prediabetes. However, it was clear from the interviews that most of these interventions will not be sustained without future DPPI-IFA funds.

ES.2 Lessons Learned

This case study, conducted during the implementation phase of the first five states in the DPPI-IFA, offers the opportunity to synthesize and disseminate the lessons learned. Some of the key lessons learned and recommendations are as follows:

CDC

- Consider providing sustained funding and more time for planning and implementing these types of interventions.
- Consider providing more technical assistance about protocols and appropriate tests to identify persons at risk for prediabetes and diabetes in a community-based screening.

State DPCPs

- Maximize existing relationships when identifying primary prevention partners.
- Consider having a relatively active role in the intervention design, given that most partners will have little experience with the topic of prediabetes.

- Consider adopting algorithms, protocols, and data tracking systems as possible, and design a tight feedback loop to ensure that persons identified as at-risk will be referred and receive appropriate diagnostic testing.
- Consider including a planned awareness and education phase for participants, prior to recruitment, as well as educational interventions for referral physicians.
- Recognize that partners may need assistance with developing data collection systems, including tracking systems, and consider involving their epidemiologist/evaluator in the design and implementation of the evaluation.
- Incorporate prediabetes activities into existing interventions to leverage other resources and improve prospects of sustainability.

In conclusion, for the past 2½ years, the DPPI-IFA—an innovative partnership between CDC, AHRQ, and five DPCPs—has challenged state DPCPs to develop novel interventions in diabetes primary prevention and to translate the research findings of clinical trials into real-world settings. Overall, the work of the DPPI-IFA has resulted in an impressive array of pilot interventions. In addition to the individual successes of each state, as a pilot initiative, the DPPI-IFA has certainly met its goal of furthering the field of prediabetes work by DPCPs in general and of identifying the challenges to be overcome and problems to be solved by the next wave of DPCPs to join this effort.

1. INTRODUCTION

1.1 Background

The United States is facing an epidemic in type 2 diabetes. Between 1980 and 2004, the number of persons with diagnosed diabetes more than doubled (from 5.8 million to 14.7 million) (CDC, National Diabetes Surveillance System, 2007). According to one estimate, if trends continue, the number of Americans with diagnosed diabetes will rise 198% between 2005 and 2050, from a prevalence of 5.6% to 12.0%, representing 48 million persons (Narayan et al., 2006). The lifetime risk of ever being diagnosed with diabetes for a person born in 2000 has been estimated at 32.8% for males and 38.5% for females (Narayan et al., 2003).

In addition to persons with known diabetes, there are millions more with undiagnosed diabetes and with prediabetes. Centers for Disease Control and Prevention (CDC) authors have estimated that more than 37 million persons aged 40 to 75 alone have prediabetes (defined as impaired fasting glucose [IFG] or impaired glucose tolerance [IGT]) (Benjamin et al., 2004). Recent clinical trials have demonstrated the effectiveness of lifestyle intervention in preventing the disease in patients with prediabetes (Diabetes Prevention Program Research Group, 2002; Pan et al., 1997; Tuomilehto et al., 2001). Furthermore, economic analyses using data from the Diabetes Prevention Program (DPP) have demonstrated the cost-effectiveness of interventions to prevent or delay the onset of diabetes (Herman et al., 2005), in particular if the cost of the intervention is shared between private payers and Medicare (Ackerman et al., 2006).

Preventing the burden of diabetes by detecting and treating prediabetes, however, demands resources and partners beyond individual providers and health systems. Federal, state, and local public health agencies play an important role in the prevention of diabetes through a variety of mechanisms, including promoting screening guidelines (American Diabetes Association, 2007), developing community-based interventions, linking providers to existing interventions, and influencing reimbursement for screening and treatment. However, public health has little evidence to draw upon in program design, because the evidence base for prediabetes screening and interventions in community and/or health care settings outside the realm of clinical trials is scarce. There is a critical need to evaluate existing initiatives and identify promising models.

1.2 The Diabetes Primary Prevention Initiative

Beginning in 2005, CDC undertook a comprehensive initiative in diabetes primary prevention called the Diabetes Primary Prevention Initiative (DPPI, sometimes referred to as DPPI-4). This initiative builds on several previous projects, including the landmark clinical trial the Diabetes Prevention Program (DPP, sometimes referred to as DPPI-1); the Diabetes

Prevention Collaborative in community/migrant health centers (sometimes referred to as DPPI-2); and the Chronic Disease Directors' Diabetes Primary Prevention Project, pilot funding to six states which resulted in recommendations to states and CDC (sometimes referred to as DPPI-3 or DPPP-3) (Chronic Disease Directors, 2005; Goodman, 2008). A final relevant initiative funded by CDC was the Diabetes Detection Initiative, which focused on diabetes (rather than prediabetes) screening but similarly was implemented through state DPCPs and partners (Manninen et al., 2005).

The Interventions Focus Area (IFA), one of three of the DPPI, funded five state Diabetes Prevention and Control Programs (DPCPs) (California, Massachusetts, Michigan, Minnesota, and Washington) to develop, implement, and disseminate a framework for statewide primary prevention programs targeting people with prediabetes. In Phase 1 of the DPPI-IFA (September 2005–March 2006) (**Appendix A**), states worked together to define the strategic questions to be answered by their work and to develop key documents, such as a charter, a logic model, and resource lists that were targeted to different sectors (e.g., health systems, businesses). In Phase 2 and currently in Phase 3, the programs continue to work together through regular conference calls and face-to-face meetings to refine the framework for DPCP efforts in diabetes primary prevention and to continue to learn from each other. Beginning in Phase 2, the technical assistance from CDC was supplemented by technical assistance from the Agency for Healthcare Research and Quality (AHRQ) and The Lewin Group.

Also in Phases 2 and 3, the states developed and began implementing their interventions. Presently, the five funded states are conducting a variety of interventions, including worksite-based screening and treatment programs; partnerships with other state health department programs, such as Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) and Women, Infants, and Children (WIC); and policy initiatives. The following gives a general overview of the interventions in each state:

- The California DPCP is working with one primary partner, a health system, to conduct worksite screening and educational interventions in two distinct phases and with three separate employers.
- The Massachusetts DPCP worked with a local community-based nonprofit organization to design and implement a worksite screening and lifestyle change intervention. The intervention was then implemented with staff employed at a local manufacturing facility.
- The Michigan DPCP is conducting or participating in three separate initiatives: a pilot program in a local health department WISEWOMAN program implementing diabetes and prediabetes screening and an educational component for persons identified as at risk for prediabetes, a training program for WIC providers on gestational diabetes and development of nutrition care plans for these clients, and support for a regional diabetes initiative led by a health system and health plan.
- The Minnesota DPCP is working primarily in partnership with its statewide Steering Committee, and through that group an independent guideline-making body, to stimulate

the development and release of prediabetes screening and treatment guidelines. A second intervention involved newspaper and television media to increase prediabetes awareness.

- The Washington DPCP provided funding for two distinct interventions. The first was a program of a rural hospital district in which a screening process for prediabetes was incorporated into an existing health risk assessment for county employees. The second intervention is a collaboration with REACH organizations in Seattle to conduct screenings in three community-based health clinics or organizations, all of which serve racial and ethnic minorities.

1.3 The DPPI-IFA Case Study

In 2007, CDC and AHRQ contracted with RTI International (RTI) to develop a descriptive case study of the five states participating in the DPPI-IFA. The purpose of the study was to describe the implementation of diabetes primary prevention programs in the five states, with an explicit intent to identify and disseminate lessons learned, resources, and tools to inform future efforts of CDC, additional DPCPs, and other stakeholders. The case study is not intended to serve as a final evaluation of these efforts, because the site visits were conducted while states were still developing and implementing interventions. Also, the case study did not examine or evaluate the work of the IFA, the interactions between CDC and the DPCPs (other than a general assessment of technical assistance that was provided to the programs), the intersection among the focus areas, or the overall design and implementation of the DPPI-IFA. Throughout, RTI's work has been guided by a Steering Group made up of representatives from CDC, AHRQ, state programs, and The Lewin Group (*Appendix B*). The questions that were developed by the Steering Group to guide the case study are presented in *Appendix C*.

Data collection for the case study consisted primarily of an extensive document review and site visits with DPCPs and their partners. From July through September 2007, five 2-day site visits were conducted to the DPPI-IFA states, and a total of 29 interviews involving 57 persons were conducted (14 DPCP staff, 6 other state health department staff, and 37 partners).

This document presents the results of the case study of the DPPI-IFA state programs, including key findings, challenges, and recommendations to CDC and DPCPs. Details on the methods of the case studies are presented in *Appendix D*, and case study findings for each of the five state programs are presented in *Appendices E* through *I*. *Appendix J* presents a summary of DPPI-IFA activities conducted in the five states since the case study data collection ended.

2. CROSS-SITE ANALYSIS

2.1 Context of the Present Intervention—Staffing and Previous Work in Prevention

Of the states participating in the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA), two are participating in the Interventions Focus Area only (MI, WA), one is also participating in the Surveillance Focus Area (MA), and two are participating in all three focus areas (CA, MN) (i.e., Interventions, Surveillance, and Systems Modeling).

Each of the five funded states implemented the DPPI-IFA with a range of staff roles. In general, each state identified a lead person for DPPI-IFA intervention activities. This individual's supervisor was also usually involved in a planning capacity, and one state (WA) also utilized contract managers. For the states that implemented a clinical screening component as a part of their intervention, there was some variation in terms of whether an epidemiologist or evaluator was involved in the evaluation. Among the four states that had a clinical intervention, all had a lead staff person with some type of clinical background.

For the most part, existing staff within the Diabetes Prevention and Control Program (DPCP) were responsible for developing and implementing DPPI-IFA activities, and the DPPI-IFA responsibilities had to fit within staff's current responsibilities. No states hired new staff to manage this effort. This is perhaps not surprising given that the DPPI-IFA effort is based on relatively short-term funding from the Centers for Disease Control and Prevention (CDC). In one state (MI), one person was devoted solely to prevention activities, which may have been beneficial for development of the program, because she could focus much of her time on DPPI-IFA activities.

Most states reported limited work in diabetes primary prevention before the DPPI-IFA, although many acknowledged the desire to do prevention work prior to this effort. DPPI-IFA funding was welcome and timely in that it enabled these states to begin implementing prevention activities. Three states (MA, MI, MN) had participated in the Chronic Disease Directors project on the public health role in the primary prevention of diabetes (DPPP-3), which respondents indicated had helped them develop ideas for diabetes primary prevention projects. Michigan's participation in the project contributed to their development of a prevention action plan, which was cited by staff as helpful in the early phases of the DPPI-IFA. Massachusetts and Michigan also participated in the Diabetes Detection Initiative, which sought to identify individuals with undiagnosed diabetes. Although not directly related to prevention, this initiative did include screening for diabetes and distribution of educational materials on prediabetes.

2.2 Description of Partners and the Partnership

At the center of all DPPI-IFA activities is the identification of capable partners and the establishment and maintenance of strong partnerships. Throughout DPPI-IFA, state DPCPs worked with a wide range of state and local partners to develop and implement their interventions. Partners have been characterized as either primary or secondary: primary partners worked directly with the DPCP on design or implementation of interventions, whereas secondary partners worked closely with the DPCP primary partners but had relatively little direct interaction with the DPCP. **Exhibit 2-1** summarizes the primary and secondary partners for each state.

Exhibit 2-1. Primary and Secondary DPPI-IFA Partners, by Funded State

DPPI-IFA State	Other Health Department State or Local	Community/State/National Organization	Business/Employer	Health System/Provider
CA			Sacramento Bee First Northern Bank Sutter Hospitals	Sutter Medical Foundation ^a
MA		Diabetes Association, Inc. ^a	Lightolier	Southcoast Hospital
MI	WIC ^a WISEWOMAN ^a Lenawee county health department TIPDON staff ^a	Northern Michigan Regional Diabetes Initiative		Northern Michigan Regional Diabetes Initiative
MN	Steps staff ^a Genomics Coordinator, MDH	Minnesota Diabetes Steering Committee (two Action Groups) ^a Institute for Clinical Systems Improvements		
WA		REACH ^a Center for Multicultural Health ^a	Garfield County Hospital District ^a	International Community Health Services ^a Sea Mar Community Health Centers ^a

Note: MDH – Michigan Department of Health; WIC = Women, Infants, and Children; WISEWOMAN = Well-Integrated Screening and Evaluation for Women Across the Nation

^a Represents a DPPI-IFA primary partner.

A wide variety of state and local partners were involved in DPPI-IFA planning and implementation, representing national programs, local public health organizations, and several businesses. Two states (MI, MN) partnered with other state or local health department programs to integrate diabetes primary prevention and/or prediabetes

screening into their existing programs. Of particular note, these programs include nationally known efforts, such as WIC, WISEWOMAN, Steps to a HealthierUS, and REACH.

Partnerships with a variety of state and community-level organizations were also central to the implementation of DPPI-IFA activities. Local partner organizations included the Diabetes Association, Inc. (DAI) (MA) and the Center for Multicultural Health (WA). State-level partners included the Northern Michigan Regional Diabetes Initiative (NMRDI) (MI) and the Institute for Clinical Systems Improvements (ICSI) (MN). Of note, only Minnesota appears to have worked closely with their statewide diabetes advisory group in developing and implementing DPPI-IFA interventions.

Finally, three states (CA, MA, WA) targeted five employers to implement a variety of worksite screening and education activities. These partners included a manufacturing facility (Lightolier), a bank (First Northern Bank), a newspaper publisher (Sacramento Bee), and a hospital (Sutter Hospitals). In Washington, Garfield County Hospital District (GCHD) employees were the target of the interventions. For the purposes of this report, we consider GCHD government a workplace, because the intervention was aimed at improving the health of government employees, across many suborganizations. These worksites employed several hundred up to several thousand employees. It is also worth noting that each workplace had some level of previous employee health programs and services.

Because many states elected to implement diabetes and prediabetes screenings, all but one state (MN) included at least one clinical partner. These partnerships included large health systems, such as Sutter Medical Foundation (CA), Southcoast Hospital System (MA), and the NMRDI (MI). Several smaller clinical partners included Sea Mar Community Health Centers and International Community Health Services, both in Washington.

2.2.1 Recruitment of Partners

Across all five states, three key themes emerged regarding primary reasons state DPCPs recruited partners for this work:

- previous experience or work with DPCP or DPCP staff
- access to target audience
- previous experience in the area of intervention (e.g., topic, methodology, or population)

These themes are far from mutually exclusive, with partners often selected for more than one of these reasons, in addition to others.

2.2.1.1 Previous Experience or Work with DPCP or DPCP Staff

Almost all DPPI-IFA states utilized existing organizational or personal relationships to identify potential partners for implementation of their DPPI-IFA interventions. In many cases, DPCPs were able to capitalize on their relationships with other state health

department programs and seek to integrate diabetes primary prevention and prediabetes screening into other bodies of work. Several states reported that the DPCP staff served on various committees and workgroups, giving them familiarity with potential partners. In addition, several respondents reported that partnerships were established through personal relationships and friendships between DPCP staff and individuals in other organizations.

Many respondents reported that existing relationships were a key to implementation of DPPI-IFA activities for a number of reasons, including the relatively tight timeline states were working under to develop and implement their interventions. Without capitalizing on these relationships, many respondents believed that implementation would have been extremely difficult. For example, in Massachusetts, the state health department was able to modify an existing contract with its key partner to include the DPPI-IFA activities. This was viewed as critical to successful implementation because a new contract did not have to be executed with the partner; this process would have been time-consuming and would have prevented Massachusetts from implementing its intervention in a timely manner. Additionally, the GCHD (WA) site was able to have good reach among its population by integrating screening into its Fit for Life program.

2.2.1.2 Access to Target Audience

As agreed upon by the DPPI-IFA Steering Group, all interventions targeted adults at risk for prediabetes or diabetes. However, each state tailored its interventions to target specific segments of the population believed to be at particular risk. Based on these priorities, many partners were selected because they provided access to these high-risk target groups. Partnering with programs such as WISEWOMAN and WIC provided access to low-income women and women who may already be at risk for diabetes. These women were also already receiving services for nutrition-related health programs and cardiovascular health issues, which can be integrated easily with diabetes primary prevention.

The partnership with the REACH program in Washington provided access to various racial and ethnic groups. Efforts implemented through local REACH programs targeted African American, Chinese, Hispanic, Latino, and Vietnamese adults. Beyond racial and ethnic groups, the GCHD (WA) intervention was selected because it sought to reach residents of a very rural community.

Three states implemented five worksite interventions aimed at reaching high-risk employees. Although the worksites were very different, each had implemented some type of employee wellness program in the past. In most of these cases, the programs had included an employee wellness assessment that found their employees were at a particularly high risk for prediabetes and diabetes. These data were then presented to management and used as a rationale for becoming involved in the intervention. However, willingness to participate in an intervention was critical, and the presence of high-risk employees was not the only criteria for involvement. None of the states described a process in which they

analyzed data from employers' wellness assessments and then approached the employers whose employees demonstrated the greatest risk.

2.2.1.3 Previous Experience in the Area of Intervention

Several partners were recruited for the DPPI-IFA because they had valuable experience that could be applied to the implementation of the DPPI-IFA interventions. This experience varied but generally included background in a particular methodology (such as screening) or topic (such as guideline development). These partners were able to contribute expertise (e.g., knowledge, resources) to the design and implementation of an intervention, without which it would have been difficult to complete.

2.2.2 Recruitment Methods

Most partner recruitment occurred through one-on-one contact with a primary staff person at the organization DPCP wished to recruit as a partner. In many of these cases, the organizations had a preexisting relationship, if not a partnership, with the DPCP, so it was a matter of speaking with someone DPCP staff already knew. In a variety of sites, these existing contacts often served as a starting point for connecting with other, often local, partners. This was perhaps most frequently the case when there was a state-level partner connecting with local branches or programs, such as with REACH and WISEWOMAN. In Massachusetts, DAI (the primary partner) was able to leverage preexisting relationships with other local organizations, and this led to the successful recruitment of a local employer and a local health system that ultimately donated resources for the screening component of the intervention.

Recruiting worksites was seen by all DPCPs as a somewhat overwhelming task; however, each was able to work through organizations that had preexisting relationships with local employers. These relationships were generally established through the provision of other services, such as screenings, health assessments, and health fairs, providing management with critical information about their employees' health. This access to employee health information could then be used as a tool for recruiting employers.

Two states (CA, WA) recruited their primary partners through a request for application (RFA) process. California received five applications in response to an RFA and made an award to Sutter Health/Sutter Medical Center largely based on the availability of a well-qualified Diabetes Nurse Educator who would lead the intervention. Washington received only one response to its RFA, GCHD, which it funded. Washington then worked with the REACH program to submit a proposal (REACH had considered applying previously but had determined there was insufficient time to develop a proposal before the due date).

2.2.3 Reasons Why Partners Became Involved

Most partners we spoke with reported that the DPPI-IFA interventions were in line with their organizational priorities and direction and were a natural fit with their organizations' existing work. Several reported that they had been thinking about this type of work and that the timing was good for them to become involved. Having even relatively modest resources available was enough for several DPCPs and partner organizations to move this work up in terms of their priorities and move them to action sooner rather than later.

DAI and Sutter Health reported that the DPPI-IFA effort was one way to expand their services beyond diabetes care and into prevention. DAI (MA) reported that, because this was the second worksite intervention they had led, they hoped it would further solidify their standing and reputation to implement these types of programs and better position them for future funding opportunities.

One of the REACH partners reported that involvement in the DPPI-IFA effort was a learning opportunity for them and that they would use this work as a way to assess the public's interest in prediabetes and community members' interest in additional resources on the topic.

2.2.4 Nature of the Partnerships

Most partners reported that the partnerships established were well balanced, with both DPCP staff and partners contributing to the decision-making process. For the WIC and WISEWOMAN interventions in Michigan, the DPCP Prevention Coordinator was described as being very involved with planning and implementation. The partnership in Minnesota with ICSI was described as mutually beneficial, with partners sharing jointly in the decision-making process.

In Massachusetts, a significant portion of the planning and implementation process was led by the primary partner, DAI. In this case, DPCP served in a largely advisory role, providing direction and recommendations from the DPPI-IFA Steering Group. Because DAI had prior experience with worksite interventions and had a long history of work in diabetes, DAI was responsible for recruiting a local partner, tailoring the DPP curriculum, implementing the intervention, and collecting data from participants.

In California, the Diabetes Nurse Educator (the primary partner staff) also had significant responsibility for developing and implementing the interventions. Initially, the DPCP was more involved with program planning and decision making but felt confident in the Diabetes Nurse Educator and eventually stepped back to let her make key decisions.

2.2.5 Communication Strategies

No DPCP staff or partners reported developing a formal communication plan for the DPPI-IFA. All partners reported a mixture of communication strategies, including e-mail and

telephone/conference calls, and a few reported face-to-face meetings. Some states reported regular communication, including biweekly or monthly calls or quarterly face-to-face meetings, but for the most part, communication consistently took place on an as-needed basis. Local partners generally reported being very pleased with the communication they received from their state DPCP, feeling that it was effective and sufficient. Respondents also indicated that DPCPs generally were helpful and responsive to partners' needs.

2.2.6 Technical Assistance from DPCP to Partners

Respondents reported relatively little formal technical assistance from DPCP staff to partners. However, this is largely due to the ongoing, yet informal, communication between DPCPs and their partners. In Massachusetts, Michigan, and Minnesota, the DPCPs were clearly viewed as the experts on diabetes primary prevention, and many partners looked to them for guidance and advice on a number of topics, including data management/evaluation and screening. In Michigan, for example, the expertise of the DPCP or its regional network offices was noted by all three primary partners, who were receptive to integrating diabetes primary prevention into their existing protocols and interventions.

At least three states (CA, MA, WA) reported engaging partners (Sutter Health, DAI, and REACH) that were extremely skilled and experienced in conducting this type of work, minimizing the need for technical assistance from the DPCP. For Sutter Health, DPCP staff were active in the earlier stages of the intervention, providing background information on the principles of DPPI-IFA and the Chronic Disease Model. As with Massachusetts, the California DPCP provided assistance with data management, namely why and how to report Common Measures. For DAI, face-to-face technical assistance was provided on data management to ensure that the data collected met the needs of the DPCP evaluation plan. The Washington REACH partners also applied their long history of work in diabetes issues to the implementation of their DPPI-IFA interventions. Although they have a history of work in diabetes, they did not have previous experience in diabetes primary prevention.

2.3 Description of the Interventions

2.3.1 Types of Interventions

The five states implemented a variety of interventions in three main domains: diabetes primary prevention and prediabetes awareness, screening and intervention, and prediabetes-related health policy (*Exhibit 2-2*).

Exhibit 2-2. DPPI-IFA Intervention Type, by Funded State

		Intervention Type								
		Diabetes Primary Prevention and Prediabetes Awareness		Screening Activities and Lifestyle			Health Policy			
		Provider	Public	Worksite	Health System	Health Dept.	Other	Health System	Health Dept.	Other
CA		X		X						
MA				X						
MI	WIC	X							X	
	WISE-WOMAN	X				X			X	
	NMRDI	X	X					X		X
MN			X							X
WA	REACH ^a				X		X			
	GCHD			X				X		

Note: GCHD = Garfield County Health District; NMRDI = Northern Michigan Regional Diabetes Initiative; WIC = Women, Infants, and Children; WISEWOMAN = Well-Integrated Screening and Evaluation for Women Across the Nation.

^aScreening program only; no lifestyle intervention currently developed.

2.3.1.1 Diabetes Primary Prevention and Prediabetes Awareness Interventions

Awareness-raising activities took place at the provider level (in CA and MI) as well as for the general population (in MA and MN).

Provider-Level Awareness. In California, education was provided to Sutter Hospital providers on prediabetes in anticipation of the fact that individuals participating in the worksite screenings who did not have a provider could be referred to Sutter Hospital and a trained provider. Most employees who participated in subsequent screenings had providers so this need never materialized, although the providers and their patients will potentially benefit from the training.

In Michigan, one of the main interventions was a statewide educational intervention on gestational diabetes for WIC providers. Training was held that reached approximately 150 providers at the WIC statewide conference. Nutrition care plan materials have been incorporated into the WIC manual, and online educational modules have been developed. A second intervention, a screening intervention with the WISEWOMAN initiative in a local health department, included an educational intervention for physicians. Local physicians in the participating county who might receive a WISEWOMAN patient as a referral were provided with educational materials about prediabetes and appropriate diagnostic testing. Finally, through the NMRDI, physicians in an 11-county region will be provided with screening and treatment tools for diabetes and prediabetes.

Public Awareness. In Massachusetts, DAI conducted a formal, intensive awareness-raising campaign at a local worksite that lasted for several weeks. DAI staff were actively involved in the campaign and were at the worksite regularly to build trust with employees. The

campaign included distribution of program materials; opportunities to speak with DAI staff; and active participation activities, such as nutrition bingo and diabetes Monopoly, where participants could win prizes (e.g., pedometer). To expand the reach of the campaign, the worksite also invited the media to attend events, which resulted in several front-page articles in local newspapers. This campaign was followed by a worksite screening and then an educational program for those at risk or interested in learning more about improving their health to prevent diabetes and prediabetes.

In Michigan, a public awareness campaign is planned for the NMRDI. A population-based telephone survey is being developed to measure diabetes and prediabetes awareness. A brochure, which was developed by the DPCP prior to the DPPI-IFA, will be used as part of a public awareness campaign. This part of the NMRDI has not been fully developed yet and has not involved DPCP or TIPDON partners to date.

In collaboration with its Steps to a HealthierUS partner, Minnesota also conducted two awareness-raising campaigns around diabetes and diabetes primary prevention. The first involved the production and dissemination of prediabetes and diabetes messages in six foreign languages (Hmong, Khmer, Lao, Somali, Spanish, and Vietnamese) via the ECHO program. These messages were delivered in a question-and-answer news format and disseminated via a local public television station. Additionally, numerous DVD copies of each show were created and will be disseminated to community partners that serve these populations. The second campaign involved the development of newspaper ads around the American Diabetes Association's (ADA's) Diabetes Expo promotion that aimed to increase awareness of the family link with diabetes.

2.3.1.2 Screening Activities and Lifestyle Interventions

Overall, four of the five states implemented some type of clinical screening component for their DPPI-IFA intervention. In Washington, screening took place as part of two distinct initiatives, so there were actually five separate screening interventions. California, Massachusetts, and Washington implemented screening at worksites (or for a defined group of employees). A second intervention in Washington implemented screening through health care organizations (although the screenings themselves took place in the community rather than in a health care setting). A final intervention in Michigan implemented screening in a health department setting through an established program, WISEWOMAN.

For the most part, the DPCPs embraced the oral glucose tolerance test (OGTT) conducted in a provider's office as the diagnostic test of choice. Three of the five screening interventions (in three of the four states) recommended OGTT, conducted in a provider's office, as the diagnostic test of choice, but these interventions varied in terms of the mechanisms used to identify persons who were eligible for the OGTT, as described below. In the final state (WA), none of the interventions (the REACH sites or GCHD) had a very tight linkage between

community screening and office follow-up testing or appeared to recommend a specific test as part of a referral.

States used various mechanisms or tests to identify persons at high risk and requiring screening. In California, a paper test and a computer algorithm using several sets of criteria, including the National Diabetes Education Program (NDEP), were used to identify individuals at risk. In Massachusetts, both the ADA paper test and a fasting capillary glucose test with a cutoff of 100 mg/dL were used, and all employees at the target worksite were eligible for both tests. In Michigan, all WISEWOMAN participants were eligible for a fasting capillary glucose test. In Washington, either a random blood glucose test or the ADA paper test was used by the four partners that conducted screenings. The variation in types of tests available to states (paper tests, ADA or NDEP criteria, venous or capillary glucose, fasting or nonfasting) appeared to be a source of confusion for the DPCPs and partners, not only about the advantages or disadvantages of various tests but also about the meaning of the results. For example, participants who had a capillary fasting glucose level above a cutoff were at times described as having prediabetes, despite the fact that the capillary test is not generally recognized as appropriate for prediabetes screening. Another example of confusion about the tests was staff referring to the capillary test as “screening for prediabetes” rather than “screening for risk status” or for “high-risk for prediabetes.”

Importantly, only one screening intervention, within the Michigan WISEWOMAN program, had a hard-copy screening algorithm (which was included in the WISEWOMAN manual), available for review. The rest of the interventions had, for example, paper screening tools to share, but they did not have a written document that specified who would be eligible for screening, tests that would be used, cutoffs determined, and what would happen as a result of a given test value. In a few instances, descriptions of these items were varying or imprecise, perhaps because of a lack of such a document.

The five screening interventions had varying levels of linkages between the community-based identification of persons at risk and clinic-based screening. Importantly, DPCPs were almost universally aware that it was critical to have a referral source for persons prior to any community-based screening intervention. One intervention (CA Phase 3) had access to a clinical team and “in-house” OGTT testing; all others relied on existing referral networks, which at times were strengthened by DPCP or partner staff, for example, who provided information about the screening intervention, provided education, or secured a commitment that patients referred would be seen. For most participants, letters were generally provided to those screened as high-risk, recommending that they seek follow-up with a health care provider, in many cases specifically suggesting an OGTT. The rates of follow-up testing by a provider, with results communicated back to the DPCP or partner, ranged from 0% in Washington (these interventions were not attempting to get follow-up data) and Michigan (results had not yet been actively “gathered” from providers) to 3% in Massachusetts, 100% in California (Phase 2), and potentially 100% in California (Phase 3)(pending repeat

testing of samples that were destroyed). The Phase 3 project in California was successful in this area because, unlike the other interventions, it took place in a worksite that developed the capacity for on-site OGTT through its occupational health clinic.

In addition to, and partly because of, the challenge of getting data back from providers, and because of the tight timeline of the DPPI-IFA, interventions were generally unable to achieve the goal of identifying a group of people with prediabetes and enrolling them in an educational intervention. One state (WA) did not have any educational intervention as part of its two initiatives, although one of the REACH agencies and GCHD are planning this for a future phase. For the three other states that conducted screenings (CA, MA, MI), all of the educational interventions included participants either whose status was not known or who were known to not have prediabetes. In Phase 2 (CA), all of the people who were interested in being screened were enrolled in the intervention, although presumably they had satisfied the NDEP criteria for being screened for prediabetes that they received in an e-mail. In Phase 3 (CA), results from the OGTT were known, but all of the persons who were screened, not just those with prediabetes, were also referred for the intervention. In Massachusetts, the persons enrolled were a mixture of those at high risk via glucose test, a positive ADA paper test, or with a high body mass index (BMI). In the Michigan WISEWOMAN program, all persons with a fasting capillary glucose ≥ 100 mg/dL were eligible for the intervention.

The primary reason given for enrolling persons without a prediabetes diagnosis was the tight timeline and low numbers of persons who were recruited. Additionally, delays in getting reports back from providers (MI) or lack of feedback of results from providers (MA) necessitated this approach. Also, staff reported being hesitant to turn anyone away who was interested in the intervention. Finally, for the Michigan WISEWOMAN program, offering the lifestyle counseling sessions to persons with any elevated fingerstick (without a provider diagnosis of prediabetes) was the intervention design. Although making the interventions available to persons not at the highest risk is understandable, given the pilot nature of these interventions and the tight timeline, it has resource implications and should be considered in future DPPI-IFA planning.

In terms of the educational interventions themselves, three states that provided screening also developed educational sessions for those identified as high risk (CA, MA, MI). All states reported adapting the DPP curriculum, and two states mentioned specifically the amount of time and resources spent adapting and shortening the curriculum. Elements of the interventions are summarized in *Exhibit 2-3*.

Exhibit 2-3. Lifestyle Interventions in the DPPI-IFA

	Number of Classes; Number of Hours	New or Adapted Intervention	Elements of the Intervention	Cost to Participants
CA	Phase 2: four 2-hour sessions Phase 3: seven 1-hour weekly sessions	New	One main topic per session (or two per session for Phase 2) covering prediabetes awareness, nutrition, physical activity, goal setting, problem solving, and stress management	Phase 2: \$30 for series, which was reimbursed by employer after completing Phase 3: None
MA	Nine 1-hour weekly sessions	New	Six group sessions, each in three parts: healthy eating, physical activity, and personal change Three individual sessions (30 to 40 minutes each) with lifestyle coach to develop and track progress on personalized diabetes primary prevention plan and goals Weekly weigh-in and self-report of physical activity DAI staff person (“peer coach”) routinely present in the Lightolier cafeteria so those enrolled in the intervention or those not enrolled could speak to someone about any diabetes-related concerns or questions	None
MI	Six sessions	Adapted from WISEWOMAN intervention	Six face-to-face individual or group visits with a nurse/lifestyle coach Grocery tour with dietician; cooking demonstration 4-month membership to a gym (Curves, Lifestyles for Women)	None

Algorithms and Protocols Used for Screening and Treatment and their Evidence

Base. As described above, only the Michigan WISEWOMAN program had a protocol that spelled out the population to be tested, the test and cutoff criteria, and action steps based on the results. Interventions varied in the tests used to identify persons at risk or high risk for prediabetes who were then referred for OGTT. In California, the NDEP recommendations (paper test or computer algorithm) for testing were used; in Massachusetts, both the ADA paper test and the fasting capillary test were used; in Michigan, the fasting capillary test

was used; and in Washington, both the random capillary test and the ADA paper test were used.

Systems for Tracking and Follow-Up of Participants. Most states acknowledged the importance of tracking and follow-up of individuals screened, but not all states implemented a comprehensive system to do so. In California, a database was developed by the Diabetes Nurse Educator and was used by the nurse in Phase 2 and by the occupational health staff in Phase 3 for tracking. Persons who qualified for the OGTT were contacted for follow-up. Massachusetts had no system for tracking; persons who received a referral and a letter for their provider were not entered into any data system. Thus, the program was unable to conduct follow-up with participants or with providers. Staff in the Michigan WISEWOMAN program reported using a paper tracking system and making calls or sending letters to participants according to a protocol. Additionally, the WISEWOMAN pilot coordinator plans to follow up and receive data directly from the provider. Michigan also uses a data system for evaluation purposes for WISEWOMAN, but they do not use the system to track patients. Few attempts at tracking were made in the Washington interventions; these staff reported that their participants were generally hesitant to give contact information at the screening events.

2.3.1.3 Health Policy Interventions

One state (MN) has worked primarily in diabetes-related health policy, by partnering with an influential guideline-making body made up of medical groups, hospitals, and health plans—the Institute for Clinical Systems Improvement (ICSI). The goal of the activity is to strengthen the reference to prediabetes within the context of two existing guidelines. ICSI is working closely with the Minnesota Diabetes Program (MDP) and the Minnesota Diabetes Steering Committee on this work. In addition, focus groups with providers have been conducted in order to develop a new Primary Prevention of Chronic Disease (PPCD) Guideline.

In Michigan, policy-level work has included institutionalizing diabetes and prediabetes screening into the WISEWOMAN program and institutionalizing care management for women with gestational diabetes into the WIC program. In addition, NMRDI is working on several distinct policy levels, including improving lab reporting of prediabetes levels of glucose and merging health records into an electronic health information system available to providers and for evaluation of the initiative. However, to date, the Michigan DPCP has not been involved in these efforts. Massachusetts has begun to examine possible partnerships with health insurance plans, but it is unclear if this would be to examine possible policy issues; to date, no formal plans or relationships have been established.

Other policy outcomes were described as results of the worksite interventions, although none were part of the planned effort. These are not listed here but are detailed in Section 2.5 (Results).

2.3.2 How Interventions Were Chosen

Some of the parameters for the types of interventions to be implemented in the DPPI-IFA were already established during earlier phases of the Initiative. For example, during the planning phases of the initiative, states agreed to target adults at high risk for diabetes, rather than include children or adolescents. According to the DPPI-IFA Charter, “diagnosis of prediabetes needs to occur within the clinical setting, but interventions may take place in the community” (CDC, 2006).

Two states described being influenced by the Common Measures and the apparent prioritization of clinical measures in deciding whether to implement a clinical intervention or other type of intervention. These states felt that an individual-level screening intervention was strongly encouraged by CDC.

Some states determined their intervention strategies before identifying partners, whereas others identified partners who then collaborated in decision making about interventions. For example, California and Massachusetts decided to conduct worksite interventions and then recruited partners (in one case using an RFA process) to implement these interventions. In contrast, Michigan approached potential partners (primarily within the health department) and determined the type of intervention jointly. Michigan also mentioned additional criteria, such as being able to expand the intervention to reach a statewide population and prioritizing health department partners. Minnesota was unique in that it worked very closely with the Minnesota Steering Committee, and interventions were mostly selected by working groups of the committee.

As already discussed, four of the five DPPI-IFA states implemented screening activities as a part of their intervention. Each state went through a different process in determining what methods and tests should be used, in part necessitated by the large number of screening tests available. According to the DPPI-IFA Charter, states are to “design intervention(s) for those adults diagnosed with prediabetes (FBS 100-125 mg/dL or oral glucose tolerance test 2-hour plasma glucose 140-199 mg/dl)” (CDC, 2006). Although this document provides some relatively clear guidance on tests and cutoffs to diagnose prediabetes, many states struggled to implement these standards using a community-based screening process, leading many to develop other strategies and approaches.

In California (which used an RFA process) and Massachusetts (which added DPPI-IFA funds to an existing contract with DAI), the DPPI-IFA lead at the DPCP and the agency (Sutter Health or DAI) collaborated to design the screening protocol. In California, the Diabetes Nurse Educator, in consultation with the DPCP, determined that the algorithm would include NDEP criteria as a paper test and then referral to providers (or occupational health clinic) for OGTT. In Massachusetts, both the agency and the DPPI-IFA lead spent time investigating the suitability of various tests (random versus fasting; capillary versus venous). This research resulted in the Massachusetts DPPI-IFA lead contributing to the prediabetes brief

on this issue. Although there was a desire to use a venous test, the DPCP was reliant upon donated time from the local hospital group, which was accustomed to supplying nurses and a capillary test for any community-based screenings. Also, the practicalities of using a venous test seemed daunting, and there was the sense that those screened would want to know their numbers immediately and not wait for results in the mail. There was also an ongoing concern regarding who would pay for the lab to analyze the samples. In Michigan, although the screening protocol and algorithm were developed by the local health department as part of its manual, the DPCP was very involved. The Michigan WISEWOMAN program decided to use a fasting fingerstick because this test was already being used for cholesterol. In Washington, REACH and GCHD developed their own algorithms and selected tests to fit the capabilities of their agencies, with some input from the DPCP.

2.3.3 Target Audience

The DPPI-IFA states addressed a wide variety of subgroups. *Exhibit 2-4* summarizes the primary target audience for each state and partner.

2.3.3.1 Target Audience Selection

States and partners varied significantly in whether and how they identified a particular group or area for intervention. Only one state (MA) discussed using surveillance data to select a particular geographic area to target for intervention. Washington specifically recruited the REACH program in Seattle, knowing that this program would provide access to higher-risk minority populations.

Other states either targeted the entire state (MN/ICSI initiative) or developed interventions based on willing partners (e.g., worksites in California, health department programs in Michigan, community-based programs in Washington). However, DPCP or partner staff subsequently were able to use population characteristics to estimate prediabetes prevalence in the target populations (for example, WISEWOMAN participants in Michigan), which documented the high-risk status of these groups. All of the worksite interventions had at least some data on employees, primarily as a result of a health assessment administered by the partner. In most cases, these health assessments identified employee health risk for diabetes; however, no states had the capacity or employed a systematic process to identify and partner with businesses that had the highest-risk employees.

Exhibit 2-4. Target Audience for DPPI-IFA Interventions

DPPI-IFA State	Partner	Target Audience
CA	Sutter Medical Foundation	Sutter Health employees
	First Northern Bank	First Northern Bank employees
	Sacramento Bee	Sacramento Bee employees
MA	DAI	All Lightolier employees, which includes a large percentage of individuals with Portuguese and Cape Verdean backgrounds
MI	WIC	All WIC providers in Michigan; all WIC clients with a history of gestational diabetes
	WISEWOMAN	WISEWOMAN participants in the Lenawee county health department program
	NMRDI	Health care providers in the 11-county region of the NMRDI
MN	ICSI Steps	Health care providers in Minnesota Somali, Hmong, Khmer, Lao, Spanish, and Vietnamese speakers
	Genomics Coordinator, MDH	Family members of individuals with diabetes
WA	Center for Multicultural Health	African Americans
	International Community Health Services	Vietnamese and Chinese Americans
	Sea Mar Community Health Centers	Hispanic/Latino community
	Garfield County Health District	Municipal employees of rural Garfield County

Note: DAI = Diabetes Associated, Inc.; ICSI = Institute for Clinical Systems Improvement; NMRDI = Northern Michigan Regional Diabetes Initiative; WIC = Women, Infants, and Children; WISEWOMAN = Well-Integrated Screening and Evaluation of Women Across the Nation

2.3.3.2 Tailoring of Intervention Messages

Evidence of tailoring intervention activities to a particular target group was somewhat limited; however, it appears that some tailoring did occur. In Massachusetts, there was evidence of tailoring of intervention elements, such as adapting menus and food selections for the large Portuguese and Cape Verdean population in the southeastern part of the state. As part of the ECHO program in Minnesota, videos were developed using native speakers of the six languages the videos aimed to reach. Similarly, one of the Washington REACH sites translated ADA risk materials into Spanish to reach that subgroup, and another REACH site discussed tailoring BMI cutoffs for the Chinese and Vietnamese subgroups. The Michigan WISEWOMAN program tailored interventions for Latina participants in Spanish, including a grocery store tour and a cooking class demonstrating healthy Latino cooking.

Beyond tailoring for a particular subgroup, several states discussed the need to tailor the DPP curriculum in terms of the number of hours and sessions that realistically could be implemented. This tailoring resulted in a shorter (hours and sessions) treatment

intervention largely due to the constraints of implementing it in an organizational setting. Tailoring of the curriculum represented a significant use of time and resources for the states that did so (CA, MA), and this was likely a barrier to any further refinement.

2.3.4 Evaluation

The implementation of evaluation activities by DPPI-IFA states appears to vary significantly by state and type of intervention. Several states were successful in collecting process and impact measures, whereas others have been less engaged in evaluation activities. In general, the involvement of an epidemiologist or evaluator appears to have contributed to a more organized data collection system and evaluation plan (CA Phase 3, MA, MI).

Most of the data collected to date are from the screening and treatment interventions. California and Massachusetts have the most data available on their screening and treatment activities, although Michigan also has developed evaluation capacity and an evaluation plan but is currently hampered by lags in needed data system improvements and data availability. The California Diabetes Nurse Educator developed an Excel spreadsheet, which was subsequently enhanced by DPCP surveillance staff for use in Phase 3. Of note, this dataset includes all those who were screened, which allows the system to be used for tracking as well as for evaluation. Similarly, the Massachusetts DPCP evaluator developed an intervention evaluation plan (largely based on the Common Measures) and from that developed an Excel spreadsheet that captures data only on those enrolled in the intervention. DAI staff were responsible for populating this spreadsheet with data such as minutes of exercise and weights of participants. Because DAI did not have extensive experience in data collection, the DPCP evaluator provided technical assistance to try to ensure data accuracy and completeness. Michigan adapted its WISEWOMAN data systems to include the prediabetes screening and intervention information. However, because of a lag in these enhancements, much of the data are not yet available. The Washington interventions generally did not have data systems for evaluation.

Relatively little data appear to be available on the implementation of nonscreening activities. In some cases, states were aware of how many ads or CDs were produced, for example, but they did not have estimates of how many people were reached through these activities at the time of the case study data collection.

2.4 Costs of the Interventions (including In-Kind Contributions)

States had not been asked to prospectively collect information on costs of their programs or in-kind contributions; hence, there were gaps in the budget information available to RTI for this case study. For the most part, RTI examined states' budgets from applications to CDC as well as states' estimates of in-kind efforts. Among states for which complete data are available, the majority of the funds were spent on DPCP labor, including a substantial amount for travel to the face-to-face meetings. Funding in the range of \$6,000 to \$50,000

was awarded to partnering organizations for the implementation of interventions. Partners were asked to estimate in-kind contributions that facilitated implementation of the DPPI-IFA interventions. In-kinds were described as not only resources/materials provided to the intervention but also additional DPCP staff time not funded by the DPPI-IFA (state or other CDC funding). Estimating in-kinds proved challenging, because the states were asked to collect this in hindsight and because many intervention activities were incorporated into existing initiatives, which were funded by multiple sources. California estimated an additional \$4,000 to \$5,000 per year in in-kind contributions; Massachusetts estimated approximately \$500 in supplies donated; Michigan estimated approximately \$24,000 in in-kind contributions of staff time and supplies from other organizations and an additional \$5,250 in state funds; Minnesota estimated an additional \$17,200 in staff time and \$20,000 in supplies in Phase II and \$22,500 in staff time in the first five months of Phase III in in-kind contributions from partners; and Washington estimated \$7,750 in DPCP funds and \$20,000 in partner in-kind funds.

2.5 Results

2.5.1 Organizational and Community Level

Across the state DPCPs, there is evidence that some interventions have been institutionalized and will continue even after funding has ended. These include the screening and lifestyle interventions for diabetes and prediabetes that have been incorporated statewide in the Michigan WISEWOMAN program; the Michigan nutrition care plan for WIC clients with gestational diabetes, which is incorporated into their manual and standard protocols; and the prediabetes screening that has been incorporated into the Partners for Life Personal Health Challenge in Garfield County, Washington (although not currently paired with a lifestyle intervention). The clinical guidelines developed by ICSI and the MDP will also represent a major policy force that has the potential to affect physician and health care system behavior across the entire state. Finally, prediabetes has been incorporated into the NMRDI, a large regional initiative in Michigan. These represent important organizational-level outcomes of the DPPI-IFA.

Several other outcomes are worth examining from the DPPI-IFA initiative. There is some evidence that prediabetes programming has become institutionalized within the DPCPs and will continue even if future funding is unknown. Michigan intends to continue funding its Prevention Coordinator staff person, and Minnesota reported that it will continue its work in prediabetes. Other states were less certain that they would continue their prediabetes work if DPPI-IFA funding were to end, and one state indicated that it would depend largely on what CDC required in future funding announcements.

Also, several states reported that prediabetes components are being incorporated into existing initiatives or that prediabetes was now elevated to a new level of importance

among the priorities of various organizations. Examples include the Michigan NMRDI, where the influence of the DPCP and TIPDON helped ensure that prediabetes was included in the initiative. This was true for the Minnesota Steering Committee, ICSI, and the Sutter Medical Foundation.

An additional outcome of note is the enhanced expertise or capacity of the DPCP or the partners to work in prediabetes or conduct specific intervention types. The California and Massachusetts DPCPs reported improved understanding about worksite interventions, as did their primary partners, Sutter Medical Foundation and DAI. More downstream effects were seen in the worksites themselves; both Lightolier and Sacramento Bee staff reported increased competencies to implement these types of health promotion interventions, and Lightolier staff reported that their management is more willing to undertake such interventions after this successful initiative.

Finally, many states reported new or strengthened partnerships as a result of the DPPI-IFA. Although the tight timeline and the uncertainty of funding seemed to challenge these partnerships at times, overall, DPCPs and partners reported uniformly that the DPPI-IFA created new or strengthened old partnerships. Notable examples are the new relationships among various units within the Michigan Department of Community Health, the new relationship between the Minnesota DPCP and ICSI, the strengthened relationship between the Massachusetts DPCP and DAI, and the new relationship between the Washington DPCP and REACH.

2.5.2 Individual Level

It is not feasible to summarize individual-level outcome results of the DPPI-IFA because (1) data are not available for some interventions, (2) a variety of screening tests were used across sites, and (3) interventions included persons who were at risk for prediabetes as well as those with a diagnosis of prediabetes. However, this report provides anecdotal evidence of potential individual-level successes.

Reach. The worksite interventions had the potential to reach large numbers of persons (e.g., more than 6,000 across the employers in California; 600 in Massachusetts); however, these interventions faced challenges with recruitment. In California, less than 1% of employees in Phase 2 and less than 3% of employees in Phase 3 volunteered for screening. In Massachusetts, 18% of employees reported for screening. The Michigan WISEWOMAN program in one local health department had a potential reach of 250 participants, and the Washington screenings had an unknown number of potential participants.

Yield. In California, both phases of screening yielded over 80% of persons being classified as at risk and recommended for screening based on NDEP criteria. For Phase 3, approximately 15% of persons referred to OGTT because of results of the paper screening were diagnosed as having prediabetes. In Massachusetts and Michigan, which used capillary

fasting tests, approximately one-quarter to one-third of persons screened had a glucose over the cutoff of 100 mg/dL. Unfortunately, no additional data are available on the diagnoses (yield) of prediabetes from these groups.

Enrollment in Interventions. It is challenging to assess whether enrollment in the interventions was an issue, because of the way interventions were, for the most part, open to persons who had signed up for screening, regardless of their risk status or screening results, and because of the limitations of the tracking systems employed. In California, 80% of those referred enrolled; in Massachusetts and Michigan, those data are not available.

Intervention Completion. Only Massachusetts had data on intervention attendance, reporting that 75% of participants completed 9 or 10 of 10 sessions.

Outcomes of the Interventions. The screening programs that included a lifestyle intervention appear to have been successful. One of the two such interventions reported an average weight loss of 3.6% among the 14 persons enrolled, and the second intervention reported an average weight loss of 4.3% among the 15 persons enrolled.

2.6 Additional Topics: Technical Assistance and the Common Measures

Two additional topics of interest are the technical assistance provided to the DPCPs and the utility to the DPCPs of the Common Measures.

Technical Assistance. Several states described the initial perceived lack of direction and guidance provided by CDC as a source of frustration, although others recognized that the brainstorming process was part of the intended design and welcomed the flexibility. At least two states specifically said that more guidance in interpreting the science of screening for prediabetes would have helped the DPCPs make decisions more efficiently. This is perhaps evidenced by the diverse methods used for screening and a general absence of written protocols developed by states.

For the most part, the exposure to the invited experts at several meetings was described as helpful. One staff person commented that, at times, the scientists seemed to be talking among themselves and not truly interacting with the DPCPs. Other elements discussed as being beneficial were the leadership and evaluation guidance given by AHRQ and the organizational and coordination assistance given by The Lewin Group.

In addition to more information about screening tests and protocols, states would have appreciated additional information about CDC expectations about the interventions and lessons learned from community-based screening interventions for diabetes.

Common Measures. Overall, opinions about the Common Measures were mixed. Most DPCP staff reported that they were helpful in guiding program development and in communicating with partners about the need for data collection. One DPCP staff person

thought the measures were heavily weighted toward the clinical interventions and hence maybe guiding them prematurely to choose to do a clinical intervention, rather than a policy or surveillance initiative. Two DPCPs (MA, MI) mentioned specifically that the Common Measures were helpful in designing the evaluation plan, and another state (CA) mentioned that the Common Measures assisted in communicating expectations between DPCP and the contracted partner. Another state found them not very useful overall, unless a screening intervention was being undertaken. Another comment was that some of the process measures were less helpful, or not as well defined. Additionally, there was no guidance about how to complete the Common Measures document, and states completed did not complete it consistently.

2.7 Tools Used or Developed by the States

Many tools were developed by the DPCPs and partners that will be relevant for new participants in the DPPI-IFA initiative. These tools are listed in *Exhibit 2-5* by intervention phase.

Exhibit 2-5. Tools Developed by States Participating in the DPPI-IFA, by Intervention Phase

	Forming/ Development	Planning	Intervention	Progress/ Impact
CA	<ul style="list-style-type: none"> ● DPPI-IFA RFA 		<ul style="list-style-type: none"> ● Recruitment e-mails/letters ● Awareness-raising PPT presentation ● Curriculum outline ● Curriculum PPT presentation 	<ul style="list-style-type: none"> ● Tracking spreadsheet
MA		<ul style="list-style-type: none"> ● Evaluation plan 	<ul style="list-style-type: none"> ● Abbreviated (9-week) version of the DPP curriculum, "Move, Lose, Prevent Diabetes" ● "Wealth of Good Health: Do a Little, Get a Lot" awareness campaign materials ● Form materials for sending screening results to health care providers and obtaining permission to participate in intervention ● Screening consent form 	<ul style="list-style-type: none"> ● Excel spreadsheet and Access database to track and analyze participant data ● Weekly physical activity charts for participant use ● Final participant survey
MI	<ul style="list-style-type: none"> ● WIC staff PowerPoint (PPT) and self-learning modules 	<ul style="list-style-type: none"> ● MI action plan ● WISEWOMAN (WW) manual ● WW focus group script and other materials ● NMRDI logic models 	<ul style="list-style-type: none"> ● NMRDI provider pre-DM risk screening tool and pre-DM tracking tool (physician packet materials) ● NMRDI physician office PPT ● WIC provider training PPT ● WIC nutrition care plan for gestational diabetes ● WIC assessment and intervention topics for gestational diabetes 	<ul style="list-style-type: none"> ● NMRDI evaluation plan ● WW analysis plan and list of data elements
MN	<ul style="list-style-type: none"> ● Rosters for MDSC, the Health Systems and Policy Change Action Group, and the Prevention Awareness Action Group (PAAG) ● Charter for PAAG ● First-year report ● Evaluation tools/ logic models 	<ul style="list-style-type: none"> ● Logic model ● Communication and social marketing plan ● Letter to ISCI requesting change in diabetes and prevention services guidelines to address prediabetes 	<ul style="list-style-type: none"> ● ECHO DVDs, cover letter, and facilitators guide ● Diabetes expo Star Tribune ad ● Family history of diabetes fact sheet ● Facilitators guide for focus groups conducted by ICSI ● Focus group report by ICSI ● Letters to Steps communities 	
WA	<ul style="list-style-type: none"> ● WA DPPI-IFA RFA 		<ul style="list-style-type: none"> ● Spanish version of ADA paper test ● Recruitment materials 	

2.8 Facilitators of Success

State DPCPs were very successful in recruiting primary partners, although some relied on preexisting relationships. Several respondents commented that utilizing existing partnerships was key to the implementation of interventions. At the same time, it is notable how many of the DPCPs actually developed strong working relationships with new partners, especially given the short time period for design and implementation. Elements that made these new relationships effective include identification of a strong lead within the primary partner organization and a common organizational goal to address prediabetes.

At the local level, the importance of preexisting networks was very apparent. For example, GCHD reported being able to benefit from personal connections and relationships that were especially strong given that GCHD is situated in a small, rural community. The relationships between an individual in the marketing department at Sutter Health and employers in the area resulted in rapid recruitment of worksites for the California DPCP. This also was the case in Massachusetts where the Chairperson of DAI was also the primary contact for Southcoast Hospital Group, which donated the screening resources.

An additional facilitator of success reported by MDP was the ability to provide funding, if only relatively minimal, to partners to implement their activities. The provision of funding to partners such as DAI in Massachusetts and Sutter Health in California, although it did not cover all the costs of the interventions, was important in securing their participation. The funding in turn resulted in a significant amount of in-kind contributions to the initiative. Even the availability of relatively small “seed” money appears to result in greater monetary, resource, and staffing contributions.

The following additional success factors were mentioned by one or a few states:

- already having a state-level action plan to guide intervention selection (MI)
- the presence of regional networks, viewed as on the ground, local diabetes experts (MI)
- data collection systems that were already in place (for WISEWOMAN intervention [MI] and GCHD [WA])
- a straightforward, easy-to-use database used by the Diabetes Nurse Educator for tracking screening and enrollment in the lifestyle intervention (CA)
- working within an occupational health office located at the worksite (CA Phase 3)

2.9 Challenges

Although all DPPI-IFA DPCPs and partners described their work with DPPI-IFA as a success, they also acknowledged many challenges. For this pilot initiative, a full description of the challenges faced by the DPCPs and partners is critical to inform future efforts.

State DPCPs and partners mentioned a host of challenges not specific to the DPPI-IFA structure but related to the obstacles that occur when developing and implementing an intervention within any type of system. These challenges ranged from difficulty getting permission from state government officials for travel (MN), challenges in gaining consensus among a committee on what interventions to implement (MN), difficulties recruiting pilot sites (MI), difficulties working with hard-to-reach populations (MI and WA), being perceived as the “government” and not in touch with local needs (MI), and one secondary partner requiring IRB review before participation could be secured (CA).

Additional challenges described were specific to the DPPI-IFA and relevant to the state and partner levels. The two most significant challenges were the level of funding to states and partners for development and implementation of interventions and the tight timeline within which interventions were to be implemented. In California, staff mentioned that more resources were needed to enhance recruitment at the worksites and to do more awareness-raising activities to attract employees to the intervention. In Massachusetts, the main partner felt that they had perhaps overextended themselves because they had contributed an extensive number of in-kind staff hours, and there was concern that their Board of Directors would not be pleased with the level of funding received relative to the time expended on the DPPI-IFA. Additionally, there was the sense that, because so many resources went into the DPPI-IFA effort, DAI was unable to complete activities it had intended to during the intervention period. In Washington, the level of funding reportedly affected elements of the intervention design in the REACH intervention; staff reported there were insufficient resources to implement any type of treatment after the screening phase. As a result, persons were screened without any plan for follow-up. In addition, the uncertainty of future funding created an additional funding-related challenge with regard to sustainability of interventions.

The very short timeline for developing and implementing the DPPI-IFA was described as a challenge by many DPCP staff and partners. It was particularly challenging, for example, for REACH, a large coalition that needed to reach consensus during intervention planning and thus had reduced time available for implementing the interventions. One DPCP staff person emphasized that, because prediabetes is a new area of focus for DPCPs and its partners, more time and resources will be needed to develop the interventions in the future. One state, Michigan, and in particular its WISEWOMAN intervention, appears to have had sufficient time for planning. The prevention lead in the DPCP began planning with the WISEWOMAN program and the local health department early in Phase 1, allowing them a full year to plan and develop the pilot. They report that they are now well-positioned to roll out the intervention to the entire WISEWOMAN program.

As described in Section 2.6, a perceived lack of clarity in guidance during the first phase of funding was cited by several DPCPs as a challenge to developing and implementing interventions within the tight timeline. Most of the DPCPs described the need for a better

understanding of CDC’s expectations for the types of interventions. In addition, several states noted that they needed to know sooner that they were expected to complete an intervention during Phase 2.

Several state and local partners described the challenge of deciphering components related to the science of screening in order to develop an appropriate screening protocol for their intervention. Although a great deal of technical assistance and training was provided to the DPCPs on one important aspect of screening (i.e., fasting blood glucose versus the OGTT), other aspects of screening do not appear to have been covered as well. One staff person described a great deal of time spent by both a DPCP staff person and a primary partner researching the different types of glucose tests (capillary versus venous; fasting versus casual) for identifying persons at high risk for prediabetes. There was evidence that these issues were not as thoroughly understood by all the DPCPs. As described above, compounding the challenge of digesting and implementing the science around screening was the tight timeline within which decisions needed to be made.

Finally, a challenge at both the state and partner levels related to the technical aspects of tracking screening participants and the need for data systems. One intervention (MI WISEWOMAN) adapted an existing data system, but other interventions (CA, MA) required newly developed software. In both instances, there were issues of partner staff not having previous experience with data collection and not being comfortable with the computer skills necessary to maintain the data.

Common challenges specific to certain partners and/or interventions were also observed. Recruitment of individual participants appears to have been a challenge for California (particularly in Phase 2) and Massachusetts. In both states, worksite participants presented a unique challenge; both states had to develop strategies and approaches that would allow for inclusion of participants working different shifts, while not disrupting operational productivity of the business. Recruitment may also have been a challenge for the Washington partners, although, at the time of our site visit, no data were shared to assess the “reach” of the Washington screening interventions.

Establishing a link with primary care providers, ensuring referrals were kept, and obtaining results from a diagnostic visit were certainly challenges for several states. One state (MA) found that physicians often returned the form granting their permission for their patient to participate in the intervention, but they did not conduct the requested OGTT to confirm the screening result.

Tracking of participants was a challenge in several states. REACH (WA) found that some people were resistant to providing contact information for follow-up, and therefore no tracking was attempted in these screening initiatives. Of the four other screening interventions (CA, MA, MI, WA [GCHD]), two tracked participants—one with a spreadsheet and one with a paper system.

Establishing the link between the screening component and the educational intervention, and identifying a population with prediabetes, was clearly a challenge for states. As a result, most of the educational interventions that took place included some persons who had only risk factors for prediabetes and not a diagnosis of prediabetes. Improving physician involvement and the process through which an individual is diagnosed with prediabetes may help ensure that the limited resources available for these types of interventions are spent serving those with the greatest risk.

Most states spent a great deal of time developing the education component to their intervention. Even with the DPP curriculum available, those that used it found they needed to adapt it extensively to meet their needs, which was challenging and labor-intensive. Only WISEWOMAN (MI) chose to adapt an existing intervention (counseling sessions) and incorporate a community resource (memberships at local gyms) rather than create something new. Even for Michigan, however, the development of the treatment component of the intervention was one of the biggest challenges faced. DAI (MA) reported exploring the use of an existing curriculum they already use; however, they were under the impression that DPPI-IFA funding required them to use the DPP curriculum, so they hired a consultant to adapt the DPP to meet their target population's needs.

2.10 Lessons Learned

The experiences of the DPPI-IFA states yield many lessons learned for future diabetes primary prevention efforts. Below are several key lessons reported by DPCP staff and/or partners. The observations and conclusions made by RTI are separate and are summarized in Section 3 (Conclusions and Implications). Comments are organized by the steps in the intervention process as outlined in the Common Measures.

General

- The importance of partnerships was emphasized consistently across the initiative. Specifically, for a clinical/screening intervention, identifying and cultivating a relationship with a community-based partner is critical for success.
- One state commented that both policy and individual-level screening interventions are needed but that the level of funding for the DPPI-IFA was not sufficient to support both.
- One DPCP that implemented a screening intervention commented that interventions that focus on surveillance and improving diabetes and prediabetes awareness should precede screening interventions.

Forming/Development

- When working with partners, it is helpful to first find a shared mission or vision/common platform and values. Then ask, how can an intervention that meets these common needs be implemented?
- A DPCP needs to be open to exploring relationships/partnerships that will allow it to take on new roles.
- It is important to brainstorm ideas first and then build groups based on the ideas.

Planning

- A prolonged planning period is necessary when looking to implement a screening intervention.
- For worksite interventions, gaining entrée through another community organization, like Sutter Health or DAI, that has existing relationships with worksites is valuable.
- Stepping stones to building relationships with local partners include attending and assisting with worksite health fairs and offering resources to a worksite such as implementation of organizational health assessments.

Intervention

- For clinical screening interventions, an algorithm is necessary and will help guide and standardize the screening process and subsequent follow-up.
- Screening interventions often require more resources than anticipated. This includes staff time to recruit participants, record patient information, and actually conduct the screening activities.
- DPCPs should not underestimate the importance of an education or awareness component for a worksite initiative. Although this piece of the intervention is labor- and resource-intensive, it is absolutely necessary to build the trust of the worksite employees.
- Where possible, utilize staff who are ethnically similar to the target group to help establish a strong and trusting relationship.
- When a lifestyle intervention is offered at a worksite, it is challenging to limit participation to those with diagnosed prediabetes, because others will be interested in receiving this type of wellness information. Be prepared to include all interested employees or have other resources available to this group or be prepared to have and share a formal protocol for inclusion and exclusion of participants.

Progress/Impact

- DPCPs must be prepared to work with partners on data collection and evaluation; many partners may not understand or value the importance of data collection or know how to accurately collect data.

2.11 Future Work in Diabetes Primary Prevention and Sustainability of Current Interventions

All DPCPs interviewed expressed interest in continuing their efforts in diabetes primary prevention; however, many DPCPs could not describe future efforts because of the uncertainty of future funding. In general, the partners, such as DAI and Sutter Health, indicated that without further funding, they would not be able to continue their efforts in this particular initiative, despite their increased capacity to work in prediabetes as a result of this effort. Individual elements of the DPCPs' work have been institutionalized, as described in Section 2.5 (Results). The DPCPs expressed varying certainty about continuing work in prevention without specific DPPI-IFA funding. One DPCP representative reported that, while they hope to continue this work, it is largely dependent upon CDC and what that agency requires in the next funding agreement.

3. CONCLUSIONS AND IMPLICATIONS

For the past 2½ years, the Diabetes Primary Prevention Initiative Interventions Focus Area (DPPI-IFA), an innovative partnership between the Centers for Disease Control and Prevention (CDC), Agency for Healthcare Research and Quality (AHRQ), and five Diabetes Prevention and Control Programs (DPCPs), has challenged state diabetes programs to develop a framework for primary prevention, targeting people with prediabetes, and has resulted in an impressive array of pilot interventions. Although the DPCPs are still in the process of implementing their interventions, the current case study was designed and carried out to provide a snapshot in time of their implementation and early outcomes and to inform planning by CDC and future diabetes primary prevention efforts by other DPCPs.

The five DPCPs have moved quickly from an early phase of working together to develop key documents, such as the Charter and the Common Measures, to planning and implementation phases of identifying partners and developing interventions across a range of categories from health care policy and guideline development to clinical screening interventions in health department programs, community settings, and worksites. Although each DPCP tackled only one or a few interventions, as Exhibit 2-2 shows, together the five DPCPs contributed to policy, organizational, and individual changes.

The results of their work to date provide valuable preliminary information for the DPCPs and stakeholders. This pilot intervention provides critical information about the biggest challenges and roadblocks encountered, how they were overcome, and key factors that contributed to successful intervention implementation. This section expands upon the “lessons learned,” which were shared by the DPCPs and described in Section 2.10, to offer some preliminary conclusions about the DPPI-IFA, based on RTI’s cross-site analysis of the case study data. This section follows the framework of the Common Measures that has informed much of the work of the DPPI-IFA.

3.1 Forming/Development

RTI did not comprehensively address this phase of the DPPI-IFA in its case study, instead focusing on a description of the interventions during implementation in 2007. Some of the topics that were briefly addressed in interviews are the creation of key documents such as the Charter, technical assistance by CDC, and partnership development by DPCPs.

Overall, the early phases of the DPPI-IFA appear to have been successful in terms of developing key documents that were cited by DPCPs as useful for individual program planning (e.g., Charter, Resource Lists, Common Measures). The Common Measures document, in particular, was cited as helping in communications with partners and with designing evaluation. The states were mixed in their assessment of whether too little or just enough guidance was provided in the early phases of the project and how much time

was spent developing shared reference documents. Because any future phases of DPPI-IFA will likely not include a prolonged development phase, this may not affect future DPPI-IFA states. However, for future initiatives, CDC may want to explore a greater balance between allowing states to work together to identify a path for initiative implementation and providing expert guidance and resources. This may be particularly important in areas where the science or the evidence base is relatively new.

In terms of partnership development, it is clear that at the center of all DPPI-IFA activities was the identification of capable partners and the establishment and maintenance of strong partnerships. State DPCPs were very successful in recruiting a range of types of partners, including other health department programs, hospitals, employers, and a health plan. Most partners reported that the DPPI-IFA interventions were in line with their organizations' priority and direction and were a natural fit with their organizations' existing work. The relatively modest resources available appear to have been sufficient to facilitate the engagement of partners and the development of interventions.

3.2 Planning

Most states felt there was not enough time to conduct adequate planning and that it was not clear until late in Phase 2 that an intervention was expected to be complete by the end of that phase. Given that almost all states and partners described an extremely tight timeline, the accomplishments of the interventions need to be understood in this light. At least one state articulated that additional time for program planning is needed, because the science of diabetes primary prevention is so new to public health practitioners.

Most partners viewed the DPCPs as the diabetes content experts, and, based on a cross-site assessment, the most effective planning appeared to take place when the DPCP staff took an active role in designing the interventions. Some DPCPs were able to identify and recruit very independent partners; however, it seems that more involvement in the actual planning of interventions is desirable at this stage. Because the science is relatively new, and the topic is new to partners, the role of the DPCP in digesting and interpreting the science is critical.

Perhaps because of the tight timeline, the DPCPs developed relatively few documents that captured the results of planning, such as program plans, protocols, or algorithms. This should be a consideration for future DPPI-IFA efforts; current states can be encouraged to capture their existing practice in such documents, and future states can be encouraged to develop these during the planning process, in order to increase the technical quality of the interventions, to facilitate their evaluation, and to decrease the burden on subsequent DPCPs that will benefit from the work done by the pilot states.

Finally, future efforts may benefit from more technical assistance in several areas that appear to have been a source of confusion among the states. These include terminology of

screening; the types and appropriateness of various tests used to identify persons in the community who are at risk and who are eligible for screening for diabetes or prediabetes; and the challenges of community-based screening, in particular the importance of tracking and follow-up.

3.3 Intervention

The five states implemented a variety of interventions in three main domains: diabetes primary prevention and prediabetes awareness, screening activities and lifestyle interventions, and diabetes-related health policy. Most of the five states implemented some type of clinical screening component for their DPPI-IFA intervention. For the most part, the DPCPs embraced the OGTT conducted in a provider's office as the diagnostic test of choice; however, states used various mechanisms to identify persons from the community at high risk and requiring screening.

Nonclinical interventions include promoting the development of statewide screening and treatment guidelines and institutionalizing prediabetes screening into existing diabetes detection or treatment or other health promotion initiatives. Interventions also included a variety of provider or public awareness efforts that were at times, but not exclusively, linked to the community-based screening initiatives.

States that implemented screening interventions were especially quick in identifying partners and implementing interventions. The relatively small number of persons who were recruited for screening and the absence of systems for tracking and follow-up of screened participants in some interventions suggest that DPCPs and partners perhaps had to set up their interventions faster than is desirable. The absence of follow-up may also be a reflection of limited resources.

The results of the DPCPs' efforts also highlight the monumental challenge of adequately identifying persons at risk in the community, achieving a diagnosis of prediabetes in the clinic setting, and then enrolling persons with a diagnosis in a treatment intervention. The DPCPs that spent a great deal of time and resources developing interventions also were challenged by filling the spaces in those interventions with persons with known prediabetes. States attributed this to (1) the tight timeline, and the need to get the treatment intervention underway; (2) the low numbers of persons who were recruited, which allowed them to open up the intervention to anyone interested; (3) delays in getting reports back from providers or lack of provider action; and (4) staff hesitation to turn away anyone who was interested in the intervention. These key factors deserve attention in future DPPI-IFA efforts.

Another challenge for the DPPI-IFA states was translating the intensive Diabetes Prevention Program (DPP) intervention and making it work in real-world settings. States found it very labor and time-intensive to tailor and condense the full DPP curriculum to meet the needs of

their partners. CDC should consider the pros and cons of providing guidance or model curricula to future DPCPs versus allowing each program to develop their own.

Several states developed very innovative partnerships and interventions to reach minority and/or non-English speaking populations, including Minnesota's partnership with the ECHO program and the Washington partnership with REACH. Although not required of DPPI-IFA states, it would be optimal for future states to utilize surveillance and other available data to inform the selection of target groups or geographic areas, as happened in Massachusetts. This may help to ensure that limited resources are spent reaching those at greatest risk.

Very creative ideas for policy interventions were seen in Minnesota with ICSI and in Michigan with the NMRDI. The activities focused on systems issues and changes that can be expected to impact physician behavior, in addition to efforts to increase provider awareness of prediabetes. These initiatives have the potential for large impact, and it will be important to capture their results in future evaluation efforts.

3.4 Progress/Impact

At the time of case study data collection, many interventions were still in the relatively early stages of implementation, thus limiting determination of their impact. Two of the four states with clinical interventions had outcome data for their participants, and both reported weight loss among participants (average of 3.6% and 4.3%), a key outcome of the intervention. Of note, both of these intervention groups were relatively small (less than 20 persons). Also, both lifestyle interventions included persons with only risk factors for prediabetes as well as persons with prediabetes. Although this would not necessarily have an effect on the outcome of percentage weight lost, it does have implications in terms of the overall effect of the intervention, because weight loss in those persons would not necessarily have the same long-term gains as among persons at highest risk.

Several policy changes attributable to the DPPI-IFA efforts are either realized (MI WISEWOMAN screening intervention) or on the horizon (MN guidelines). States and partners reported increased capacity to do work in prediabetes, enhanced partnerships, and elevation of prediabetes among the priorities of key organizations. It is not possible at this point to determine the effect of these policy changes or other organizational outcomes, but the work of the DPCPs clearly has the potential to influence clinical and public health practice through wide-reaching mechanisms.

In terms of sustainability, interventions that incorporated prediabetes activities into existing interventions seemed to be most successful at leveraging other resources and integrating prediabetes work into sustainable initiatives. Unfortunately, many DPCPs and partners described efforts that would end when DPPI-IFA funding ended.

Overall, the DPPI-IFA has been described as a very valuable effort by all partners involved. It has created a greater awareness and emphasis on diabetes primary prevention in DPCPs and partners and has resulted in several sustainable efforts and changes that have the potential to significantly improve the quality of services available to those at risk for diabetes. The efforts of the five states that participated in this pilot give clear direction for CDC and future DPCPs in terms of some strategies for success and challenges to overcome. **Exhibit 3-1** summarizes the conclusions and implications in terms of possible recommendations for CDC, DPCPs, and other stakeholders.

Exhibit 3-1. Recommendations for Stakeholders

CDC	State	Partner/Stakeholder
Provide sustained funding.	Have clear expectations for roles of partners.	Take advantage of DPCP expertise in terms of knowledge of diabetes and prediabetes screening.
Provide sufficient time for planning and implementation.	Maximize existing relationships when identifying primary prevention partners.	Recognize the important contribution of local networks of relationships and access to secondary partners that will aid the DPCPs.
Provide additional technical assistance about protocols and appropriate tests for identifying persons at risk for prediabetes and diabetes in a community-based screening. Provide guidance on expectations for interventions.	Consider having a relatively active role in the intervention design, given that most partners will have little experience with the topic of prediabetes. For clinical interventions: <ul style="list-style-type: none"> ○ Consider a prolonged awareness and education phase prior to recruitment. ○ Evaluate and adopt algorithms or protocols of others. ○ Do not underestimate the time necessary for tracking and follow-up of participants. ○ Ensure clinical referrals and design a tight referral loop to get back diagnostic information in a timely fashion. ○ An educational intervention for referral physicians may be beneficial. ○ Adopt existing intervention curriculum if possible. ○ Adopt existing data systems for tracking and evaluation. ○ Involve the epidemiologist/evaluator in evaluation and tracking of Common Measures. ○ Recognize that partners may need assistance with developing data collection systems. 	Seek necessary technical assistance regarding data systems, tracking, and evaluation.
Provide even a small amount of funding for states' partners and interventions.	Look for potential policy or health system interventions that can complement clinical interventions or that could precede clinical interventions.	

3.5 Limitations of the Study

The major limitation of this study is that it was conducted while DPCPs were in an early to mid-implementation phase of their interventions. Thus, it cannot be considered a definitive description of the work of the DPPI-IFA states. At the point that this case study document was finalized, DPCPs were invited to submit supplemental material (Appendix J), which provides some additional detail on activities conducted through February 2008.

In addition, this case study was not intended to be a final evaluation. Any findings, lessons learned, or recommendations that extend beyond a description of the five state interventions must be interpreted with caution and deserve further exploration.

3.6 Future Directions

The results of the case study, although descriptive in nature and preliminary, do suggest future directions for the programs and for CDC. First, a comprehensive evaluation of the DPPI-IFA, and of the entire DPPI, should be a high priority for CDC at the conclusion of the final phase of funding. In particular, the interventions that are more difficult to quantify (the health policy and awareness interventions) deserve a more in-depth exploration of potential outcomes, such as improved provider awareness of prediabetes or changes in practice behavior. Second, for the screening and lifestyle interventions, although economic data proved challenging to collect when it was not an a priori requirement for the programs, a more rigorous cost effectiveness analysis (of this or of future DPPI-IFA interventions) will generate important information about the translation of the DPP into the real world. Third, a reexamination of the DPPI-IFA design, with screening of participants taking place in the community but diagnosis taking place in the provider's office, seems warranted. If the design is to be maintained, more focused technical assistance on the methods and the challenges of community-based screening are suggested by the results of the case study. Fourth, the experiences of the programs suggest that novel ways are needed to secure the linkages between community and providers to ensure that scarce resources for interventions are targeted to the persons at greatest risk.

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**APPENDIX A:
DPPI-IFA TIMELINE**

Phase	Dates
Phase 1	September 2005–March 2006
Phase 2	April 2006–March 2007
Phase 3	April 2007–March 2008

Note: DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area

**APPENDIX B:
MEMBERSHIP OF THE DPPI-IFA CASE STUDY STEERING GROUP**

	Organization	Role
Tara Bubniak	The Lewin Group	Technical Assistance
Roger Chene, MPH, RD	California Diabetes Program	Intervention Workgroup Chairperson
Denice Glover	CDC/NCCDPHP/DDT	CDC Consultant
Amy Herr	The Lewin Group	Technical Assistance
Rita Mays, MS, RD, LN	Minnesota Department of Health	Intervention State Representative
Mark Rivera, PhD	CDC/NCCDPHP/DDT	CDC Consultant
David Stevens, MD	Agency for Healthcare Research and Quality	Task Order Officer
David Williamson, PhD	CDC/NCCDPHP/DDT	CDC Consultant

Note: CDC = Centers for Disease Control and Prevention; DDT = Division of Diabetes Translation;
 DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area; NCCDPHP =
 National Center for Chronic Disease Prevention and Health Promotion

APPENDIX C: DPPI-IFA CASE STUDY QUESTIONS

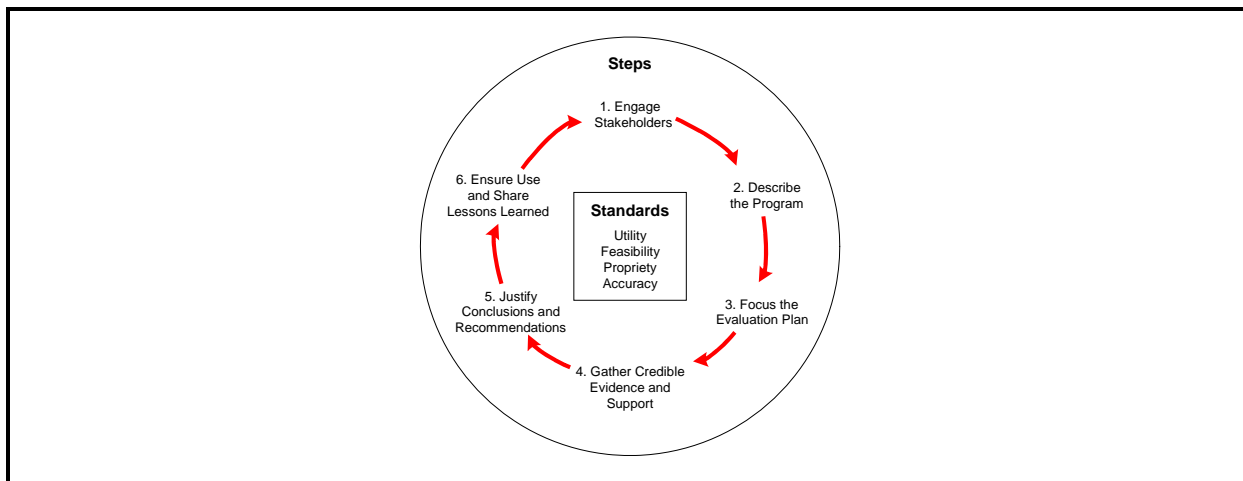
Level	Overarching Questions	Relevant Sections in the Cross-Site and Conclusions Text
Structure	• What are the intervention designs?	2.3, 3.3
	• Are interventions consistent with best practices and available evidence?	2.3, 3.3
	• What types of support were most helpful to the pilot states in facilitating implementation of this program?	2.6, 3.1
	• What have been the resources needed for planning and implementing the program?	2.4
	• What are the states doing to institutionalize/sustain the programs?	2.11
Process	• How do the programs recruit and retain partners?	2.2
	• What communication strategies were used to maintain open communication between states and local partners?	2.2.5
	• What are partners doing to meet the DPPI objectives?	2.2, 2.3
	• How do the programs involve partners once they are on board?	2.2.4
	• What tools have been developed or used by states?	2.7
	• How has the use of Common Measures affected the overall initiative?	2.6
	• What are the programs accomplishing?	2.5, 3.4
Outcome	• What are accomplishments at the participant level?	2.5.2, 3.4
	• What are the accomplishments at the community/organizational level?	2.5.1, 3.4

Note: DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area

APPENDIX D: METHODS

RTI adapted the Centers for Disease Control and Prevention (CDC) "Framework for Program Evaluation in Public Health" (1999) (Exhibit D-1) to organize and describe its case study design. The case study design was also heavily influenced by Robert K. Yin's *Case Study Research: Design and Methods* (1994) and Michael Q. Patton's *Utilization-Focused Evaluation* (Patton, 1997). A project timeline is provided in Attachment 1.

Exhibit D-1. CDC's Framework for Program Evaluation—Adapted Steps for Case Study Plan Development



Source: Centers for Disease Control and Prevention (CDC). 1999. "Framework for Program Evaluation in Public Health." *Morbidity and Mortality Weekly Report* 48(RR11):1-40.

D.1 Steps 1 and 2: Engage Stakeholders and Describe Program

The first task was to assemble the Steering Group to guide the work of the case study project. In initial conference calls, it was determined that the Steering Group would consist of the Agency for Healthcare Research and Quality (AHRQ), CDC, The Lewin Group, and state representatives only. Input also would be requested from other Division of Diabetes Translation (DDT) staff and stakeholders as needed. Members of the Steering Group are listed in Exhibit D-2.

The most important stakeholders of this project are CDC, the five current Diabetes Primary Prevention Initiative Interventions Focus Area (DPPI-IFA) states, and future states involved in diabetes primary prevention initiatives. Approximately 1 month after the contract start date, in May 2007, RTI staff attended the DDT national meeting and participated in a face-to-face meeting with the five states to gain their interest and trust in the case study effort and solicit their thoughts and feedback on an initial case study design, particularly the data collection plan. RTI representatives also met face-to-face with key CDC and AHRQ

Exhibit D-2. Membership of the DPPI-IFA Case Study Steering Group

	Organization	Role
Tara Bubniak	The Lewin Group	Technical Assistance
Roger Chene, MPH, RD	California Diabetes Program	Intervention Workgroup Chairperson
Denice Glover	CDC/NCCDPHP/DDT	CDC Consultant
Amy Herr	The Lewin Group	Technical Assistance
Rita Mays, MS, RD, LN	Minnesota Department of Health	Intervention State Representative
Mark Rivera, PhD	CDC/NCCDPHP/DDT	CDC Consultant
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David Williamson, PhD	CDC/NCCDPHP/DDT	CDC Consultant

Note: CDC = Centers for Disease Control and Prevention; DDT = Division of Diabetes Translation; DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area; NCCDPHP = National Center for Chronic Disease Prevention and Health Promotion

stakeholders and the Steering Group at this time and attended breakout sessions where DPPI-IFA states presented on their activities. Subsequent to these initial meetings, RTI has conducted monthly calls with the Steering Group and has participated in the bimonthly IFA conference calls.

Immediately after the annual DDT conference, RTI provided states with a checklist of documents for RTI’s review. Other documents were made available by CDC and The Lewin Group and obtained from the California Diabetes Information Resource Center (DIRC) Web site. Exhibit D-3 lists the documents RTI staff reviewed that are relevant to the overall DPPI-IFA project and those specific to each state. RTI reviewed all of these materials to become familiar with IFA efforts.

D.2 Step 3: Focus the Case Study Plan

RTI worked with the Steering Group to identify stakeholder goals and interests and determine which would be addressed by this case study effort. The initial set of questions was based on the Request for Task Order that RTI responded to; with additional extensive document review, RTI developed drafts of case study questions and interview protocols. Through a series of four telephone conference calls and one face-to-face meeting, the Steering Group reviewed and provided input on iterative drafts. Decisions were made by the Group to focus on the present activities of the five Diabetes Prevention and Control Programs (DPCPs) with some attention to the process of development of partners and interventions; to gather data using a Program Summary Form to be completed by DPCP staff, in order to cut down on the length of the protocols; and to not collect data

Exhibit D-3. Document Review

General DPPI-IFA	DPPI-IFA Phase 1 documents: Charter, Logic Model, Framework, Resource Lists	IFA Phase 1 report	DPPI-IFA summary
	Minutes from all IFA conference calls	Phase 2 report template	
	Prediabetes brief	DPPI comprehensive final report outline	
State- Specific	Monthly updates (Common Measures)	Budget pages from CDC cooperative agreements	DPCP organizational chart
	Intervention protocols/ algorithms	Partners or advisory committee membership list	Communication plans
	Scope of work and budget pages from subcontracts with partners	Progress reports to CDC	Any other materials posted to DIRC
	DDT meeting (5/07) materials: handouts and PowerPoint presentations	Progress reports submitted by partners to DPCP	Any additional materials provided by states
	Minutes of meetings with partners	Copies of promotional materials	

Note: CDC = Centers for Disease Control and Prevention; DDT = Division of Diabetes Translation; DIRC = Diabetes Information Resource Center; DPCP = Diabetes Prevention and Control Program; DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area

from individual participants. The final documents are included as Attachments 2 through 4. Importantly, the interview protocols were also reviewed in depth by Mark Rivera, PhD, from CDC's DDT, who has a lead role in the DPPI overall evaluation. RTI met individually with Dr. Rivera to review the case study plans to ensure that RTI evaluation efforts were going to coordinate with his efforts and not be redundant. Dr. Rivera made recommendations and raised some questions and concerns. His feedback was then brought by RTI to the Steering Group for consideration.

A description of the study and copies of the interview protocols were submitted to RTI's Institutional Review Board (IRB) and were determined to be exempt from review. RTI also consulted with staff at AHRQ, who determined that the protocols did not require Office of Management and Budget review.

D.3 Step 4: Gather Credible Evidence

RTI's case study included two distinct investigations:

1. State Level: To fully understand and describe the varying approaches used by each of the five pilot states, RTI conducted individual case studies of each state initiative. These case studies provide a rich, qualitative description of the implementation process in each state and enhance the understanding of program implementation and factors that impede or facilitate program success; describe benefits and challenges faced by program stakeholders; and characterize and investigate progress toward desired outcomes within target groups. This allows for the identification of case-specific tools and resources that have been developed to address the particular foci of the interventions implemented.

2. Initiative Level: A second case study aggregates the state-level data across the five states to provide an overall cross-site evaluation of the DPPI-IFA effort. This case study examines common lessons learned and challenges and facilitators to program implementation.

D.3.1 Data Collection

Within each case study, RTI engaged in three primary forms of data collection: development and completion of a state-specific Program Summary Form (PSF); in-depth, open ended interviews; and review of program documents. Given the large number of case study questions of interest to the Steering Committee, and the concern of burdening respondents with an extensively long interview, a subset of questions was collected using a PSF (see Attachment 4). The form collected data on a variety of questions that the group believed were appropriate for collection using a form (rather than interview) and could be collected in advance of the site visits to improve the data collection team's understanding of state activities, thus allowing further tailoring of the interview protocols. Before sending the PSF to the primary DPCP contact in each state, RTI staff reviewed any existing documentation on state activities (e.g., DDT presentation handouts) and inserted information from those documents into the form in an effort to further reduce any burden on respondents. Each state DPCP then received its state form and was asked to review the information and add information as appropriate. State DPCPs then e-mailed the completed forms back to their primary RTI point of contact, along with any additional program materials available. RTI staff then reviewed the form and used it in several ways. It was first used to help identify key partners with whom RTI would speak during the face-to-face site visits. Additionally, by expanding RTI's overall understanding of the state activities and partners, it was possible to tailor the interview protocols used on the site visit. This helped ensure that the protocols reflected the work being conducted in each state and did not include extra questions that were not in line with the activities of the state (e.g., if a state was not conducting screenings, then the state was not asked about its process for screening). Finally, in preparation for the site visit, RTI team members used the forms to improve their overall understanding of state activities and the context within which they were developed and being implemented. Drawing upon what was learned from document reviews and the PSF, RTI conducted intensive 2-day site visits to each of the five pilot states. These site visits included key informant interviews; additional archival record collection; and, for one program, observation of intervention activities.

Each site visit was conducted by two people, an interviewer and a recorder. In addition, interviews were tape-recorded as a backup to ensure that all information was recorded accurately. An orientation session for RTI team members was conducted to ensure that comparable data were collected across all five sites. Site visits were coordinated with the pilot states during times that were most convenient for them in order to reduce the burden on participants. Additionally, interviews were scheduled at times during the day that were

most convenient for participants and at locations of their choosing. States volunteered to help coordinate the schedules for the visits, which was extremely helpful to the RTI team.

The site visit protocol was developed based on the case study questions developed by the Steering Group and consisted of a series of open-ended, semistructured questions that were asked of key informants at both the state DPCP and key partner organizations. A combined purposive and snowball sampling strategy was used to identify key informants beyond program staff members with a maximum of 12 key informant interviews per site visit, in groups no larger than three persons. Interviews included key staff, external program stakeholders, and program partners. Because each state is implementing unique interventions with a wide variety of partner organizations, the interview protocol was tailored as appropriate prior to each site visit to ensure that interviews were conducted with the most appropriate individuals.

In addition to the interviews, any additional documents that had not been obtained prior to the site visit were requested and/or collected. Essential information and attributes of these materials were abstracted and maintained in an inventory for use in later analyses. Finally, at one site (CA), we observed an education session that was part of the intervention.

A key challenge to the completeness of data collected by RTI for this case study is that the project was conducted while some interventions were underway and others had yet to be initiated. States first convened in September 2005 for a planning year (Phase 1; 9/05–3/06). In Phase 2, states continued to plan and were also expected to implement interventions. The case study commenced at the beginning of Phase 3 (4/07–3/08), and data collection occurred in July through September 2007. At the point that this report was finalized, DPCPs were invited to send additional information about activities that had occurred since the site visit. This information is included as an appendix to the main report.

D.3.2 Data Analysis

Two separate analyses were conducted for this case study, based on the key case study questions identified by the Steering Group. Because the case study is largely descriptive in nature, an extensive a priori coding structure was not used; rather, data were analyzed around case study questions. Where appropriate and helpful, common themes were identified and used as loosely defined codes both within and across states. For the state-by-state analysis, each state was treated as an independent case and data were analyzed as such. The primary RTI contact person for each state also served as the lead analyst for that state. The analyses included an in-depth review of a variety of materials, including the PSF completed by state DPCP staff; annual budgets; and a variety of other program materials, which varied greatly by state. Additionally, notes and recordings of each face-to-face and/or telephone interview conducted with key partners were reviewed and data were abstracted and analyzed. These various pieces of data were then examined collectively to respond to

the overarching case study questions developed by the Steering Group. After analyses were completed and a site summary was drafted, each case study team member independently reviewed each of the summaries to provide input and feedback to the author. Because two people were sent to each site visit, the secondary site visit staff person was asked to pay particular attention to the summaries for the states they visited to ensure that data were interpreted and presented accurately.

A second level of thematic analysis was then conducted across data for all five DPPI-IFA states. The Project Director and Associate Project Director led these analyses, again guided by the key case study questions developed by the Steering Group. This process included reviewing the individual case summaries and reviewing the raw data and program materials as necessary to identify critical elements common to all five pilot states, as well as significant lessons learned, facilitators to success, and challenges. Additionally, a brainstorming process was conducted with all of the evaluation team members after all of the site visits were completed to identify key areas for discussion. From these analyses, a cross-site report was developed and thoroughly reviewed by all team members who provided comment and feedback and verified data for the states they were most familiar with.

D.3.3 Cost Estimation

RTI and the Steering Group determined that an estimate of in-kind contributions by DPCPs and partners, combined with a review of the budget pages from cooperative agreements between CDC and DPCPs and from contracts between DPCPs and partners, would constitute the level of data collection for project costs. States were provided with guidance (in the PSF) and were requested to contact their partners to derive an estimate of in-kind costs. Although this proved challenging to many states, to some extent RTI has been able to summarize CDC spending as well as in-kind contributions across a broad outline of cost categories.

D.4 Steps 5 and 6: Justify Conclusions and Recommendations and Ensure Use and Share Lessons Learned

In addition to this final report—which was reviewed by AHRQ, CDC, the Steering Group, and state DPCPs—RTI will continue to work with AHRQ, CDC, and the Steering Group to develop a dissemination plan based on key findings from the case study. Currently, this plan includes preparing and submitting at least one manuscript to a peer-reviewed journal that will highlight the issue of diabetes primary prevention and focus on lessons learned from the work of the five funded DPCPs. RTI staff also will assist the DPCPs with development of PowerPoint presentations for the 2008 DDT conference and will present the case study findings at that meeting.

ATTACHMENT 1: PROJECT TIMELINE

Milestone	Completion Date
Meet with TOO and other AHRQ, DPCP, and CDC staff	April 11, 2007
Monthly progress report	10 days after close of each month
Workplan and timeline	By April 18, 2007
Draft goals/objectives of case study	By April 20, 2007
First conference call with Steering Group	By April 23, 2007
Face-to-face meeting with Steering Group	May 2, 2007
Monthly Steering Group call	Second Wednesdays of month, 3 p.m. EST
IRB approval	RTI (June 12) UNC (June 13)
Draft protocols to designated reviewers	By June 8, 2007; by June 22, 2007
Feedback received	By June 29, 2007
Finalize Program Summary Form	By June 29, 2007
Finalize protocols	By July 6, 2007
First site visits	Third week of July 2007 (MA 19th/20th)
Site visits	July–September 2007
Interim reports of case study findings	Every 3 months, starting September 1, 2007
Preliminary draft of case study	November 15, 2007
Final case study	February 29, 2008
Products and tools for spread and dissemination	February 1, 2008
Manuscript	March 31, 2008

Note: AHRQ = Agency for Healthcare Research and Quality; CDC = Centers for Disease Control and Prevention; DPCP = Diabetes Prevention and Control Program; TOO = Task Order Officer

**ATTACHMENT 2:
CASE STUDY PRIORITIES AND STUDY QUESTIONS**

Level	Overarching Question	Sub-Questions	Data Collection Method		
			DPCP Interview	Partner Interview	Other
Structure	What are the intervention designs?	What is the organizational structure at the state for implementation of the interventions?	X		
		What are the roles state DPCP staff play in implementation?	X		
		What are the key lessons learned with regard to initiating the DPPI-IFA intervention effort at the state and partner levels? <ul style="list-style-type: none"> We will probe on issues such as staffing, changes in the initiative design or model over time, etc. <i>This question would be most informative if asked when interventions are further along in implementation.</i>	X	X	X
	Are interventions consistent with best practices and available evidence?	What are strategies for raising awareness and recruiting patients? <ul style="list-style-type: none"> We will probe to determine if strategies were tailored for different populations. 	X	X	
		Do partners use evidence-based algorithms for screening?	X	X	X
		Are appropriate referral and treatment sites for patients diagnosed with prediabetes and diabetes available and utilized? If not, why not?	X	X	X
		Did states use the Chronic Care Model and improvement model in designing their interventions? Did they find these useful?	X		
	What types of support were most helpful to the pilot states in facilitating implementation of this program?	What types of technical assistance were provided to states and local partners and by whom?	X	X	
		What types of technical assistance were most helpful to states/partners?	X	X	
		What types of technical assistance were least helpful?	X	X	
		What types of technical assistance would have been helpful but were not provided?	X	X	

Level	Overarching Question	Sub-Questions	Data Collection Method		
			DPCP Interview	Partner Interview	Other
Structure	What have been the resources needed for planning and implementing the program?	What resources (fiscal, personnel) were needed to plan and implement the intervention?	X	X	X
		Were any funds provided in addition to federal funding? If so, what was the type of funding source (e.g., employer, foundation)?			X
		What resources were provided by partners to implement the interventions? <i>We can give examples of types of "resources" (for example, FTEs, in-kind resources, materials).</i>	X	X	X
		How are the state resources for this initiative allocated? <i>We can give examples/categories of types of "resources" (for example, FTEs, in-kind resources, materials).</i>			X
	What are the states doing to institutionalize/sustain these programs?	Do state programs plan to continue this effort after funding? Why or why not?	X		
		What steps are being taken to sustain this effort?	X	X	
		What structure would be ideal for the institutionalization/sustainability of the DPPI-IFA diabetes primary prevention efforts? (e.g., What additional staff and resources are needed?)	X		
Process	How do the programs recruit and retain partners?	How did the state select, establish, and fund local partners? <ul style="list-style-type: none"> • How were partners identified? • Did they tend to be existing partners or were new ones recruited? • For existing partners: How was this effort introduced? 	X		
		Who are partners? Do they represent at-risk populations?		X	X
		What challenges did states face in recruiting and retaining partners?	X	X	
		What were the most successful strategies for recruiting and retaining partners?	X	X	

Level	Overarching Question	Sub-Questions	Data Collection Method		
			DPCP Interview	Partner Interview	Other
Process		What are the lessons learned with regard to recruiting and maintaining partnerships during this initiative?	X	X	
		What do partners report as their motivations for participation in the interventions?		X	
		How were partners involved in the decision making process?	X	X	
	What communication strategies were used to maintain open communication between states and local partners?	How do programs communicate with their partners (e.g., e-mail, phone, face-to-face meetings)? How frequently did communication occur? Was a communication plan developed? How effective was the communication that occurred?	X	X	
		Were partners satisfied with the communication they received from the state? If not, why?		X	
	What are partners doing to meet the DPPI-IFA objectives?	What interventions are being implemented by partners?			X
		How did DPCP/partners decide which interventions to undertake (e.g., ask about utilization of CCM or other models in decision making)?	X	X	
		What barriers/facilitators have been encountered during implementation of the interventions? We will probe on influence of the partner.	X	X	
	How do the programs involve partners once they are on board?	In what ways are community partners involved in: <ul style="list-style-type: none"> • Program start-up? • Ongoing program implementation? • Evaluation? Plans for involvement in the future?	X	X	
	What tools have been developed or used by states?	What tools and/or resources have states and partners used to implement their interventions?	X	X	

Level	Overarching Question	Sub-Questions	Data Collection Method		
			DPCP Interview	Partner Interview	Other
Process	How has the use of Common Measures impacted the overall initiative?	What is the value to states of having Common Measures?	X		
		What are the data sources for the Common Measures?			X
		Do these data sources provide valid and reliable data?			X
		What additional measures have states implemented?	X		X
Outcome	What are the programs accomplishing?	What did the states and partners accomplish as a result of this initiative?	X	X	
		How did DPPI-IFA impact DPCPs' future approach to diabetes primary prevention?	X		
	What are accomplishments at the participant level?	How many participants were identified as high risk?			X
		How many participants were identified as having prediabetes or diabetes?			X
		Did the interventions successfully ensure enrollment in intervention programs and clinical care?			X
		What were the outcomes of persons enrolled in intervention programs?			X
	What are their accomplishments at the community/organizational level? <ul style="list-style-type: none"> • Relationships among partners • Partner involvement in diabetes primary prevention and control beyond this effort 	How have the relationships between community organizations, businesses/employers, health care staff, policy makers, and consumers and the DPCP changed as a result of this initiative?	X	X	
		Within these partner agencies, are changes made regarding diabetes primary prevention and control (e.g., change an organizational policy, select it as a priority problem to address as an agency)?		X	

ATTACHMENT 3: INTERVIEW PROTOCOLS

State Staff Protocol

Overview

- We are from RTI, a not-for-profit research organization with our main office in North Carolina.
- RTI has been contracted by the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Disease Control and Prevention (CDC) to conduct a case study of the interventions component of the DPPI-IFA initiative being implemented in five states.
- The purpose of our case study is to describe how the five funded states—California, Massachusetts, Michigan, Minnesota, and Washington State—are implementing diabetes primary prevention efforts. We are not evaluating the DPCP. Instead, the Division of Diabetes Translation (DDT) has asked for case studies that explain how and why the programs are addressing primary prevention.
- During this trip, we are speaking with state DPCP health department staff and their partners in DPPI-IFA to understand what was done as a part of this effort and to identify lessons learned so that organizations looking to implement similar efforts in the future can benefit from what was learned in this effort.
- The purpose of this discussion is to obtain some more detailed information on your experiences with the project, lessons learned, benefits and challenges, and recommendations for improvement.
- Other RTI team members will be conducting similar visits and discussions in the other partner states.
- We expect this discussion to last about 60 to 90 minutes.
- There are no right or wrong answers. Participation is completely voluntary, and you may stop at anytime.
- We would like to ask your permission to record our discussion. This is only for note-taking purposes, so that we don't miss anything that is said.
 - If you want us to turn off the recorder, just let us know.
 - Tapes will be destroyed after we're finished.
- Your individual comments will not be shared with anyone outside of RTI's project team. RTI will write a report based on the findings; however, your name will not be attached to the report. Your responses will remain strictly confidential.

Do you have any questions before we begin?

Introduction

I'd like to start by asking some background questions about your organization's involvement with the initiative.

1. First, can you start off by telling us what your role is with this initiative?
 - a. Title
 - b. Organizational affiliation
 - c. How long have you been working on this diabetes primary prevention initiative?

State Staffing

2. How was the DPPI-IFA interventions component implemented in terms of staffing?
 - a. What roles did state DPCP staff play in implementing the interventions and overseeing partners?
 - b. Did this change from start-up to the implementation phase? If yes, please describe the changes.

Intervention Development

I'd like to start by learning more about the intervention(s) you are implementing and how it was developed.

3. We know a bit about the work you are doing but could you please give a brief overview of the intervention(s) DPCP is involved in for this effort?
 - a. Why was the target audience selected for the intervention?
4. What factors were involved in DPCP deciding which interventions to undertake?

Intervention(s) Implementation

I'd like to talk now about how you implemented your intervention(s) once it/they was/were designed.

5. In what ways did you tailor the strategies you are using to increase awareness of prediabetes in the target audience or group?
6. In addition to your efforts to increase awareness, are there other ways in which you have reached out to recruit participants for your intervention(s)?
 - a. How have you tailored these to reach your target audience?
 - b. Do you feel these methods have been successful?
7. What changes would you want to make in the future to further raise awareness of your intervention(s) and recruit participants?

8. Screening and referral protocols
 - a. What algorithms are you using for screening?
 - Are these evidence-based?
 - If so, what body of evidence do they come from?
 - If not, how were they developed?
 - b. Explain to me what happens once a person is diagnosed with either prediabetes or diabetes. (Probe: What would be the next steps for this patient?)
 - c. What types of clinical sites are available for patients diagnosed with prediabetes and diabetes? Have any patients not been able to obtain primary care? If so, why?
 - d. What types of treatment/intervention/program sites are available for patients with prediabetes? Have any patients with prediabetes not been able to obtain the assistance?
 - e. What, if any, other additional needs are there for people with diabetes and prediabetes in terms of referral and treatment?
9. How have the interventions changed or evolved over time?
 - a. What necessitated this change?
10. Are there any key factors or elements that have helped facilitate the implementation of your intervention(s)? (e.g., funding, committed advocate, characteristics of environment that made implementing the intervention easier or with greater success)
11. What challenges or barriers has DPCP faced in implementing your intervention(s)?
 - a. How have these challenges been addressed?
 - b. Are there any that you have not been able to overcome?
12. Are there any tools or resources you found particularly helpful during implementation of your intervention(s)?

Partnerships

I'd like to talk now about your partnership with the other community partners in this effort.

13. How did the DPCP determine which partners to work with on this effort?
 - a. How were partners identified?
 - i. What challenges did you face in recruiting partners?
 - ii. What were the most successful strategies for recruiting partners?
 - b. Which of these were organizations you had partnered with previously and which were new partners?
 - i. Why did you not use existing partners?
 - ii. Why did you use existing partners?
 - c. How was this effort introduced to the partners?
14. In what ways were the partners involved in the decision-making process during the development of the intervention?
 - a. During the implementation of the intervention?
 - b. How could this process have been improved?

15. What challenges has the DPCP faced in retaining partners?
 - a. What do you think have been the most successful strategies for retaining partners?
16. How have the DPCP's relationships with its partners changed since becoming involved in this effort? Partners include community organizations, businesses/employers, health care staff, policy makers, and consumers
17. What recommendations do you have on how other state DPCPs can successfully recruit other partners for this type of effort?

Outcomes

18. Briefly, what would you say your organization's goals and objectives were in becoming involved in this effort?
19. To what extent has the program accomplished these goals and objectives?
20. What additional successes and accomplishments have resulted from your involvement in this effort?
 - a. How has DPPI-IFA impacted how your DPCP will address diabetes primary prevention in the future?
21. There have been a common set of measures that DPPI-IFA state partners have been using for the intervention component. We gathered some information from you about this on the summary form we asked you to complete previously. Additionally, we would like to know your thoughts on the value of having these Common Measures. In your opinion, how helpful or not helpful have these Common Measures been?
 - a. Why?
 - b. What has been the most challenging about them?
 - c. What has been the most helpful about them?
 - d. What are the data sources for the Common Measures you are using? Please describe the process for ensuring reliability and validity of the data collected for the Common Measures? How do you know it is accurate to the best of the state's ability?
 - e. What additional measures have you collected for your effort?
 - f. How do you decide if a measure was met or not met?

Technical Assistance

I would now like to ask you some questions about the technical assistance you received from CDC/AHRQ/Lewin for this initiative.

22. What training/technical assistance related to diabetes primary prevention did the DPCP receive from CDC/AHRQ/Lewin?
 - a. Was this technical assistance sufficient to successfully implement the intervention?
 - b. If not, what additional technical assistance would have been helpful?

23. What types of technical assistance and support from CDC/AHRQ/Lewin would you say was most helpful to the DPCP?
24. What types of technical assistance and support was least helpful to your organization?
25. In addition to what you mentioned above, is there any other support or assistance that would have been helpful to the DPCP to implement this intervention?
26. What types of technical assistance did the DPCP provide to its partners to implement the interventions?

Sustainability

27. Is the DPCP looking to sustain/maintain these efforts in the future?
 - a. Why or why not?
 - b. What, if anything, is being done to help ensure that this program will continue once the current funding ends?

Lessons Learned

28. If you were talking to someone else trying to implement a program like this, what advice would you give them?
Probe: critical elements
29. Is there anything else we should know about your efforts and recommendations for future work?

Wrap Up

- Thank you for your willingness to help us tell the story of this important work. We greatly appreciate your time.
- Again, the purpose of this discussion was to obtain some more detailed information on your experiences with the project, lessons learned, benefits and challenges and recommendations for improvement. Recording the discussion was only for note-taking purposes, so that we do not miss anything that was said. The findings will be shared only with RTI project team and will be reported in aggregate form.
- If you have questions at a later point, please feel free to contact [Name] at [phone number].

Partner Protocol

Overview

- We are from RTI, a not-for-profit research organization with our main office in NC.
- RTI has been contracted by the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Disease Control and Prevention (CDC) to conduct a case study of interventions component of the DPPI-IFA initiative being implemented in five states.
- The purpose of our case study is to describe how the five funded states—California, Massachusetts, Michigan, Minnesota, and Washington State—are implementing diabetes primary prevention efforts. We are not evaluating the DPCP. Instead, the Division of Diabetes Translation (DDT) has asked for case studies that explain how and why the programs are addressing primary prevention.
- During this trip, we are speaking with state DPCP health department staff and their partners in DPPI-IFA to understand what was done as a part of this effort and to identify lessons learned so that organizations looking to implement similar efforts in the future can benefit from what was learned in this effort.
- You were identified by the state DPCP staff as an important partner in this effort, and that is why we would like to speak with you about your experiences, specifically lessons learned, benefits, challenges, and recommendations for similar future efforts.
- The purpose of this discussion is to capture and include your experience in the case study of the DPCP.
- Other RTI team members will be conducting similar visits and discussions in the other participating states.
- We expect this discussion to last about 45 to 60 minutes.
- There are no right or wrong answers. Participation is completely voluntary, and you may stop at anytime.
- We would like to ask your permission to record our discussion. This is only for note-taking purposes, so that we don't miss anything that is said.
 - If want us to turn off the recorder or would like to discontinue to interview at any point, just let us know.
 - Tapes will be destroyed after we're finished.
- Your individual comments will not be shared with anyone outside of RTI's project team. RTI will write a report based on the findings; however, your name will not be attached to the report. Your responses will remain strictly confidential.

Do you have any questions before we begin?

Introduction

I'd like to start by asking some background questions about your organization's involvement with the initiative and more about the interventions(s) you are implementing and how it was developed.

1. First, can you start off by telling us what your role is with this initiative?
 - a. Title
 - b. Organizational affiliation
 - c. How long have you been working on this diabetes primary prevention initiative?
2. Why did your organization become involved with this effort?
 - a. Did your organization approach the DPCP or did DPCP approach your organization to partner in this effort?
 - b. Prior to your involvement with the diabetes primary prevention initiative, what type of experience did your organization have with diabetes or diabetes primary prevention?

Intervention Development

3. We know a bit about the work you are doing but could you please give a brief overview of the intervention your organization is involved in for this effort?
 - a. Why was the target audience selected for the intervention?
4. What were the factors involved in your organization deciding which interventions to undertake?
 - a. Were there any resources, tools, theories or models that you used to design or select the intervention? (For example, materials from similar efforts?)
 - i. Were these provided by the DPCP or were they identified through other means?
 - ii. Probe on Chronic Care Model, improvement model, evidence base

Intervention Implementation

I'd like to talk now about how you implemented your program.

5. In what ways did you tailor the strategies you used to increase awareness of prediabetes in the target audience or group?
6. In addition to your efforts to increase awareness, are there ways in which you have reached out to recruit participants for your intervention?
 - a. How have you tailored these to reach your target audience?
 - b. Do you feel these methods have been successful?
7. What changes would you want to make in the future in terms of raising awareness of your program and recruiting patients?

8. Screening and referral protocols
 - a. What algorithms are you using for screening?
 - i. What is the source?
 - b. Explain to me what happens once a person is diagnosed with either prediabetes or diabetes? (Probe: What would be the next steps for this patient?)
 - c. What types of clinical sites are available for patients diagnosed with prediabetes and diabetes?
 - d. What types of treatment/intervention/program sites are available for patients with prediabetes?
 - e. What, if any, other additional needs are there for people with diabetes and prediabetes in terms of referral and treatment?
9. How has your intervention changed or evolved over time?
 - a. What necessitated this change?
10. Are there any key factors or elements that have helped facilitate the implementation of your intervention(s)? (e.g., funding, committed advocate, characteristics of environment that made implementing the intervention easier or with greater success)
11. What challenges or barriers has your organization faced in implementing your intervention?
 - a. How have these challenges been addressed?
 - b. Are there any that you have not been able to overcome?
12. Are there any tools or resources you found particularly helpful during development or implementation of your intervention?

Partnerships

I'd like to talk now about your partnership with your state's Diabetes Prevention and Control Program.

13. Has your organization worked with the DPCP before? In what way?
14. How did your organization learn about the opportunity to become involved with the DPPI-IFA interventions?
15. What types of resources and support, besides funding, have been provided to your organization by DPCP for implementation of this effort?
16. How does your organization communicate with the DPCP (e.g., through regular meetings, conference calls)?
 - a. How frequently are you in communication with the DPCP?
 - b. Was there a communication plan in place to help guide communication?
 - c. How could this communication be improved?

17. In what ways was your organization involved in the decision making process during the development of the intervention?
 - a. During the implementation of the intervention?
 - b. Could this process have been improved?
18. What challenges have arisen in this partnership?
 - a. How have these been handled?
19. How has your relationship with DPCP changed since becoming involved in this effort?
20. If you were to continue partnering with the DPCP for diabetes primary prevention efforts, what changes would help to improve this partnership?
21. What recommendations do you have on how the state could successfully recruit other partners in the future?

Outcomes

22. When you decided to take on this effort what were you hoping to accomplish?
23. To what extent were you able to meet these accomplishments?
24. What additional successes and accomplishments have resulted from your involvement in this effort?
 - a. Have there been any other changes within your organization as a result of its involvement in this effort (e.g., organizational policy, changes in health plan coverage)?
25. To what extent has your relationships with other organizations changed as a result of its involvement with this effort (DPPI-IFA)?

Technical Assistance

I would now like to ask you some questions about the technical assistance you received from the state for this initiative.

26. What training/technical assistance related to diabetes primary prevention did you receive from the DPCP?
 - a. Was this technical assistance sufficient to successfully implement the intervention?
 - b. If not, what additional technical assistance would have been helpful?
27. What types of technical assistance and support would you say was most helpful to your organization?

Sustainability

28. Is your organization looking to sustain/maintain these efforts in the future?
- a. Why or why not?
 - b. What, if anything, is being done to help ensure that this program will continue once the current funding ends?

Lessons Learned

- What advice would you give to others implementing similar programs?
- Probe: critical elements

Is there anything else we should know about your efforts and recommendations for future work?

Wrap Up

- Thank you for your willingness to help us tell the story of this important work. We greatly appreciate your time.
- Again, the purpose of this discussion was to capture and include your experience in the case study of the DPCP. Recording the discussion was only for note taking purposes, so that we do not miss anything that was said. The findings will be shared only with RTI project team, and reported in aggregate form.
- If you have questions at a later point, please feel free to contact [Name] at [phone number].

**ATTACHMENT 4:
PROGRAM SUMMARY FORM**

**DPPI-IFA Case Study
DPCP Program Summary Form v1 7-17-07**

State Name: _____

Name of Program: _____

Program Contact Information:

Name: _____
Title/Role: _____
Organization: _____
% Time on Project: _____
Address: _____

Phone Number: _____
Fax Number: _____
E-Mail: _____

Evaluator (if applicable):

Name: _____
Title/Role: _____
% Time on Project: _____
Address: _____

Phone Number: _____
Fax Number: _____
E-Mail: _____

Other Main Contacts:

Director/Manager of DPCP Name (if not already provided above):

Title/Role: _____
% Time on Project: _____
Address: _____

Phone Number: _____
Fax Number: _____
E-Mail: _____

Agency's Web Site Address (if available):

Other Important Contact Information: _____

A. State Program Grant Overview

1. Please complete the following table(s) for each of your major DPPI-IFA interventions. Copy and paste the table and complete for each.

Intervention #1

Name/Title of Intervention	
Date Intervention Began Implementation	
Goals/Objectives of the Intervention	<p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>Please add additional goals/objectives of the intervention if necessary.</p>
Key Partners in the Intervention and Role in Implementation	<p>Partner Organization 1:</p> <p>Key contact person and their role at organization:</p> <p>_____</p> <p>_____</p> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <p>_____</p> <p>Description of at-risk population this organization serves:</p> <p>_____</p> <p>_____</p> <p>Role in intervention:</p> <p>_____</p> <p>_____</p>

	<p>Partner Organization 2:</p> <p>Key contact person and their role at organization:</p> <p>_____</p> <p>_____</p> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <p>_____</p> <p>Description of at-risk population this organization serves:</p> <p>_____</p> <p>_____</p> <p>Role in intervention:</p> <p>_____</p>
	<p>Partner Organization 3:</p> <p>Key contact person and their role at organization:</p> <p>_____</p> <p>_____</p> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <p>_____</p> <p>Description of at-risk population this organization serves:</p> <p>_____</p> <p>_____</p> <p>Role in intervention:</p> <p>_____</p> <p>_____</p> <p>Please add additional partners if necessary.</p>

<p>Description of Population or Group This Intervention is Aimed At</p>	
<p>Why Was This Population or Group Selected?</p>	
<p>What Strategies Have Been Used to Recruit Participants in This Intervention? (If Applicable)</p>	
<p>Brief Description of the Intervention</p>	
<p>Outcomes or Successes Achieved to Date for This Intervention</p>	
<p>Challenges Faced During Development of the Intervention</p>	
<p>Challenges Faced During Implementation of the Intervention</p>	
<p>Key Lessons Learned from Both Development and Implementation of the Intervention</p>	
<p>Other Information You Think It Would Be Helpful for Us to Know About This Intervention</p>	

Intervention #2

<p>Name/Title of Intervention</p>	
<p>Date Intervention Began Implementation</p>	
<p>Goals/Objectives of the Intervention</p>	<p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>Please add additional goals/objectives of the intervention if necessary.</p>
<p>Key Partners in the Intervention and Role in Implementation</p>	<p>Partner Organization 1:</p> <p>Key contact person and their role at organization:</p> <p>_____</p> <p>_____</p> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <p>_____</p> <p>Description of at-risk population this organization serves:</p> <p>_____</p> <p>_____</p> <p>Role in intervention:</p> <p>_____</p> <p>_____</p>

	<p>Partner Organization 2:</p> <p>Key contact person and their role at organization:</p> <hr/> <hr/> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <hr/> <p>Description of at-risk population this organization serves:</p> <hr/> <hr/> <p>Role in intervention:</p> <hr/> <hr/>
	<p>Partner Organization 3:</p> <p>Key contact person and their role at organization:</p> <hr/> <hr/> <p>Contract amount (\$) awarded from DPCP if applicable. If no funding is provided to this partner, please write \$0:</p> <hr/> <p>Description of at-risk population this organization serves:</p> <hr/> <hr/> <p>Role in intervention:</p> <hr/> <hr/>
	<p>Please add additional partners if necessary.</p>

Description of Population or Group This Intervention is Aimed At	
Why Was This Population or Group Selected?	
What Strategies Have Been Used to Recruit Participants in This Intervention? (If Applicable)	
Brief Description of the Intervention	
Outcomes or Successes Achieved to Date for This Intervention	
Challenges Faced During Development of the Intervention	
Challenges Faced During Implementation of the Intervention	
Key Lessons Learned from Both Development and Implementation of the Intervention	
Other Information You Think It Would Be Helpful for Us to Know About This Intervention	

2. Do you have annual work plans that specify goals/objectives? If so, please send to: (primary contact for the site visit)
-

B. Program Environment and Resources

1. Organizational Structure
- a. How many health department staff work on this project? What are their specific roles? Provide an organizational chart of staff specific to this project (*if available*).

Name of Staff Person	Position	Roles/Functions	% FTE Devoted to This Project

2. Please describe any diabetes primary prevention activities conducted by the DPCP prior to the DPPI-IFA effort.

3. Funding
- a. What is the funding received from the Division of Diabetes Translation (DDT) for the DPPI-IFA for each year of the initiative?

FISCAL YEAR	RECEIVED
Year 1 (2005–2006)	\$
Year 2 (2006–2007)	\$
Year 3 (2007–2008)	\$

- b. Please attach any copies of budget pages from cooperative agreements your DPCP has with other partner organizations or individuals.

c. What additional sources of funding were/are used to fund DPPI-IFA activities? From which sources?

Additional Sources of Funding for DPPI-IFA Activities

Source of Funding	Grant/Partner/Other	Amount	Year 1/2/3?

d. Please describe any in-kind contributions made by partners. If you are unsure of what in-kind contributions partners have made, then please work with them to try to develop a complete list.

Partner Providing Resource	Place a Check in the Column That Represents the Type of In-Kind Contribution				Estimated Value	Method for Estimating Value ^a
	Staff Hours Donated	Supplies	Meeting Space	Other (please describe)		

^aThe method for estimating value can vary greatly. For example, for staff hours, please estimate hourly rate x number of hours donated; for supplies and meeting space, please estimate retail cost of purchase or rental.

C. Partnerships

1. If you have an advisory committee that advises the DPPI-IFA effort, please provide us with an updated membership list that includes titles and organizational affiliations of all members.
2. If there are **additional** key partners that are not described in Section A above, please provide their information below. **Do not include partners already listed in Section A.**

Key Partnerships

1) Name of Organization:

Primary contact person and role at organization (e.g., nurse, HR representative):

Role in intervention: _____

Description of at-risk population this organization serves: _____

2) Name of Organization:

Primary contact person and role at organization (e.g., nurse, HR representative):

Role in intervention: _____

Description of at-risk population this organization serves: _____

3) Name of Organization:

Primary contact person and role at organization (e.g., nurse, HR representative):

Role in intervention: _____

Description of at-risk population this organization serves: _____

4) Name of Organization:

Primary contact person and role at organization (e.g., nurse, HR representative):

Role in intervention: _____

Description of at-risk population this organization serves: _____

Please feel free to add additional key partners as necessary.

D. Intervention Design

1. If you have included diabetes screening as a part of your state's DPPI-IFA efforts, please provide the algorithms/protocols your intervention has used for screening persons for prediabetes. How were these algorithms/protocols selected/developed? What evidence base, if any, was used in their development? You may attach other documents you may have to describe this information if that is easier.

2. What types of clinical sites are available for patients with prediabetes? How is follow-up ensured? Please be as specific as possible.

3. What types of treatment/intervention/program sites are available for patients with prediabetes? Please provide details of the intervention or program they are referred to (attach description). What is the evidence base for this intervention?

E. Common Measures and Data Sources

1. What additional data/measures are or will you be collecting, in addition to the DPPI-IFA Common Measures? Please note if these data are currently being collected or will be collected in the future and the anticipated start date of that data collection.

F. Lessons Learned

1. What are key lessons learned in initiating and implementing the DPPI-IFA at the state and partner level?

2. In what ways has your intervention plan changed or evolved since your original proposal? Why have these changes been made?

DPPI-IFA Case Study: Program Summary Form Diagram

The Program Summary Form Diagram outlines the steps that participants may go through in a DPPI-IFA intervention. We understand that

- some of you do NOT have any data for this diagram, because you do not have a patient-level intervention;
- some of you will only have data on a few patients; and
- you might have missing data for some of these boxes, or your intervention design might vary slightly from this format.

We plan to walk you through this diagram during the site visit. Please do your best to complete this prior to the visit, and we can answer any questions you might have at that time.

Please note that these measures do track with the Common Measures. However, collecting data in a standardized way will allow us to understand better the flow of patients in these interventions.

Here are some definitions of the terms we have used:

Target audience: What is the total number of persons potentially reached by this intervention? For example, if your intervention is at a worksite, how many persons work there?

Number of persons reached through awareness activities: Based on your interventions, can you estimate how many persons (so we can calculate what percentage of the target audience) you reached to make them aware of your intervention?

Number of persons who were recruited for screening for risk status: How many persons took a paper screening test if you used that? Or showed up for evaluation of risk status?

Number of persons high risk: What were the results of the screening test? How many persons were high risk for diabetes or prediabetes?

Number who were screened: Of the persons found to be at high risk, how many were screened for diabetes or prediabetes?

Results available: Of the persons screened, for how many do you have the results? We have learned from our conversations with you that that getting this information back from providers can be challenging, and we'd like to get some information on this as well.

Of those persons with results, what are they? How many had diabetes/prediabetes/normal results?

Number clinical follow up ensured: For those with diabetes, do you have information on the number that had clinical (primary care) follow-up?

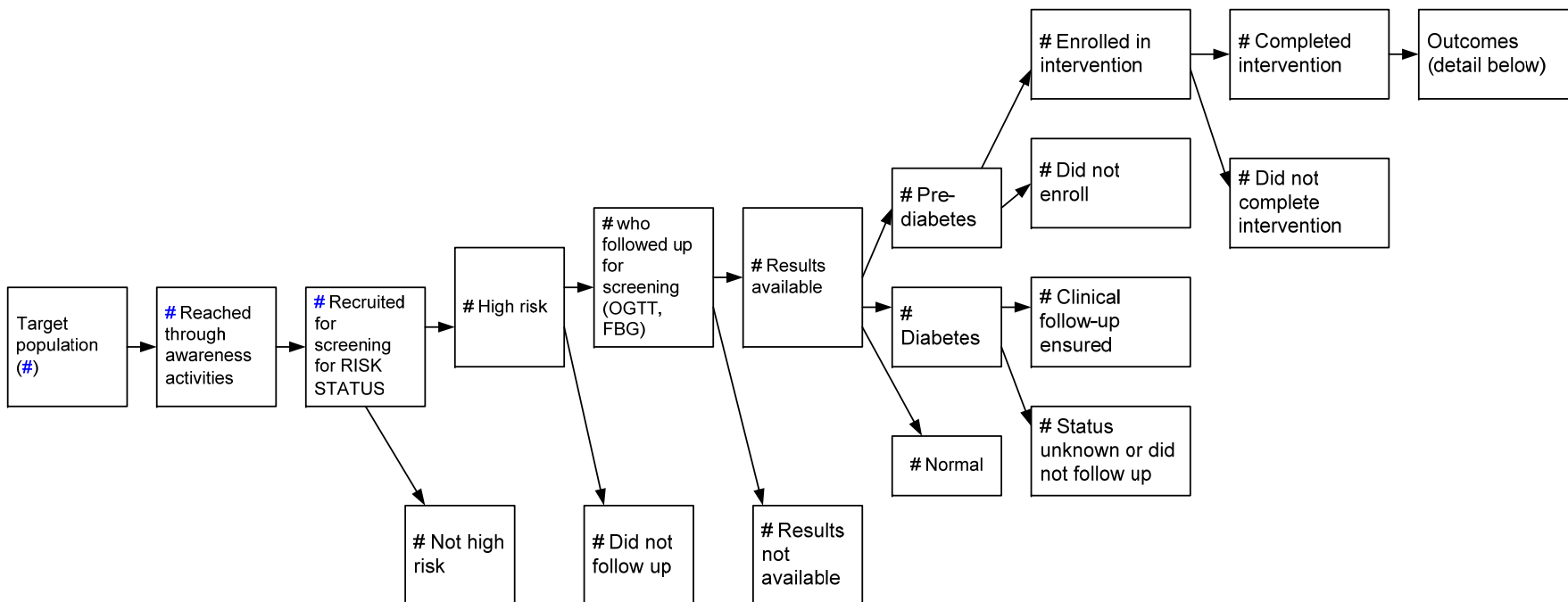
Number enrolled in intervention: For those with prediabetes, how many persons enrolled in a physical activity/nutrition intervention?

Number completed intervention: For those with prediabetes enrolled in an intervention, how many completed the intervention?

Outcomes: What were the results of persons enrolled in an intervention? Do you have data on weight loss, or blood glucose, blood pressure, etc.? Please detail at bottom of next page.

DPPI-IFA Case Study: Program Summary Form Diagram

Place a number (#) in every box (except last box: "Outcomes").



Outcomes: a. What information on OUTCOMES of participants in your interventions do you have (for example, average weight loss, any physiological data [HbA1c, blood pressure, etc.]?)

RTI Staff Reviewer _____
Date Reviewed _____

APPENDIX E: SITE-SPECIFIC SUMMARY: CALIFORNIA

From July through September 2007, five 2-day site visits were conducted to the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA) states (i.e., California, Massachusetts, Michigan, Minnesota, and Washington). A range of 6 to 13 participants were interviewed in each state, for a total of 57 persons in 29 interviews. This included 14 Diabetes Prevention and Control Program (DPCP) staff, 6 other state health department staff, and 37 partners. This appendix summarizes DPPI-IFA activities in California.

The California DPPI-IFA implemented worksite interventions that incorporate a screening process followed by an educational component. All DPPI-IFA activities were heavily informed by Diabetes Primary Prevention (DPP) materials, including the *Small Steps, Big Rewards* screening recommendations and DPP educational resources.

DPPI-IFA successes range from individual lifestyle changes to increased awareness among target audiences, as well as among local- and state-level stakeholders. In this section, we describe the DPPI-IFA intervention, including the roles of the California DPCP and all partner organizations, intervention activities, costs, challenges, successes, and lessons learned.

E.1 DPCP Infrastructure

DPCP is housed in the California Department of Health and was funded for the DPPI Interventions, Surveillance, and Systems Modeling Focus Areas. In the remainder of this section, we describe DPCP staffing, funding, and previous work in diabetes primary prevention.

E.1.1 Staffing

The DPCP originally funded 11 staff, two of whom—the Area Health Prevention Specialist and the Program Chief—focused on the Interventions Focus Area (IFA). However, midway through Phase 2, the Program Chief left the program, leaving the Area Health Prevention Specialist to run the IFA for California. Other staff on the California DPPI-IFA program contributed to the IFA by helping to develop the screening algorithm and providing a lesson for the educational component in Phase 3. Throughout this report, we refer to the Area Health Prevention Specialist as the Intervention Lead.

The Intervention Lead became involved with the DPPI-IFA in fall 2005 and was not part of the first stages of planning for the state. He works part-time on the DPPI-IFA and also chairs the IFA Workgroup. The Intervention Lead also participated on the IFA subgroup that developed the Common Measures. The Intervention Lead said his role is primarily to provide guidance to DPPI-IFA's key partner, Sutter Health, helping develop, implement, and evaluate the DPPI-IFA intervention.

E.1.2 Funding

The primary costs of the DPPI-IFA were staff time, travel, and supplies. For the IFA, the DPCP, Sutter Health, and the Sacramento Bee contributed significant staff time above and beyond what was covered by Centers for Disease Control and Prevention (CDC) funds, but because these hours were not documented, in-kind estimates were not provided. **Exhibit E-1** presents the yearly total costs of the CA DPPI, not just the IFA.

Exhibit E-1. DPPI Budget: California

Phase	Total	Staff	DPCP Travel	Supplies/ Other	Funds to Partner/Cost of Intervention	Notes
Phase 1 (05–06)						
CDC funds	\$179,404	\$29,717	\$46,315	\$97,083*	\$0	*Indirect costs(\$13,289), Other (\$2,000), Consultant (\$79,583)
DPCP funds/ in-kinds	\$0	\$0	\$0	\$0		
Partner in-kinds				\$0	\$0	
Phase 2 (06–07)						
CDC funds	\$179,404	\$94,088	\$63,770	\$21,546*	\$20,000**	*Indirect costs (\$13,289), Other (\$1,010), Equipment/software/ supplies (\$7,247), **\$20,000 carried over from Phase 2
DPCP funds/ in-kinds	\$0	\$0	\$0	\$0		
Partner in-kinds	\$5,000			\$5,000	\$0	Sutter provided notebooks and pedometers
Phase 3 (07–08)						
CDC funds	\$179,404	\$43,001	\$58,466	\$14,777*	\$15,000	*Indirect costs (\$13,289), Other (\$1,688)
DPCP funds/ in-kinds	\$0	\$0	\$0	\$0	\$0	
Partner in-kinds	>\$4,000			>\$4,000	\$0	

Note: CDC = Centers for Disease Control and Prevention; DPCP = Diabetes Prevention and Control Program; N/A = not applicable

E.1.3 Previous Work in Diabetes Primary Prevention

The Intervention Lead indicated that California had done work previously in screening for diabetes, but details were not available.

E.2 Description of Key Partners and Description of Interventions

E.2.1 Intervention with Sutter Hospitals and First Northern Bank

The DPCP distributed a request for applications (RFA) to identify the primary partner for the DPPI-IFA. Five applications were received, and a Diabetes Nurse Educator at Sutter Medical Center was identified through this process to implement the DPPI-IFA intervention. DPPI-IFA funds were originally distributed to the Sutter Medical Center, where the Diabetes Nurse Educator worked in diabetes management. She has since moved to the Sutter Medical Foundation and brought DPPI-IFA funding with her in her new role. We refer to Sutter Health throughout this document as the partner that helped to implement the DPPI-IFA program in California (as described in E.2.1.1, Sutter Hospitals is also the partner for this intervention—thus, the distinction between Sutter Health, the primary partner, and Sutter Hospitals, the secondary partner).

The DPCP and Sutter Health required that the intervention be based in worksites and incorporate both a screening and an educational component. The Sutter Health marketing department identified worksites that demonstrated an interest in health promotion programs and had a demonstrated need for diabetes primary prevention based on employee health risk assessments.

E.2.1.1 Key Stakeholders in Phase 2

For Phase 2, Sutter Health identified two secondary partners with which to implement the DPPI-IFA intervention (described below): Sutter Hospitals and First Northern Bank Sutter Health.

Sutter Health. DPPI-IFA funds were initially awarded to Sutter Medical Center and then transferred to Sutter Medical Foundation because the Diabetes Nurse Educator transferred from one organization to the other. We refer to these organizations as Sutter Health to simplify reporting and because the Diabetes Nurse Educator was the primary staff member working on the intervention at each site, although a number of other Sutter Health employees were invited to participate in the intervention as speakers for the classes.

The marketing department at Sutter Health helped identify employers with a higher-than-average number of employees at risk for developing diabetes. The marketing department had worked with employers in the area on other worksite wellness programs and applied this experience and knowledge to the selection of employers most appropriate for this intervention.

Staffing. The Diabetes Nurse Educator has been an essential component of the planning, implementation, and evaluation phases of the DPPI-IFA interventions in California. Her educational background is in program development, and the DPPI-IFA program allowed her to incorporate program development and implementation into her role at Sutter Health.

Because she worked on a per diem basis, she simply increased her hours to accommodate her newly expanded workload.

The Diabetes Nurse Educator worked with the Intervention Lead to identify best practices relevant to worksites, screening, tracking, and curricula. She also modified the DPP curriculum to meet the needs of each partner organization, and she provided instruction for this program.

Previous work with diabetes or other prevention programming. While at the Sutter Medical Center, the Diabetes Nurse Educator had provided diabetes awareness programs at worksites through the Sutter Health marketing department. She also conducted health screenings for employees' health risk assessments and provided one-on-one consultation for employees at risk for diabetes.

Why partner was interested in DPPI-IFA. The Diabetes Nurse Educator was pivotal in bringing the DPPI-IFA to Sutter Health and initiated the adoption of the DPPI-IFA because she wanted to move beyond screening and awareness to broader program development and implementation.

Sutter Medical Center was interested in the DPPI-IFA intervention because they wanted to expand their current services to include prediabetes work. They also wanted to be involved in the early stages of translation of primary prevention science and understanding of prediabetes. When the Diabetes Nurse Educator transferred to Sutter Medical Foundation, the DPPI-IFA intervention was integrated into the Foundation's prevention efforts to help reach its goal of reducing patient medical costs.

Technical assistance provided by DPCP to Sutter. The Intervention Lead and the Diabetes Nurse Educator had an effective working relationship, despite not having worked with each other before the DPPI-IFA grant. The Intervention Lead described the Diabetes Nurse Educator as "independent and responsible," and he felt confident letting her make decisions and direct the DPPI-IFA intervention, especially after its initial development. DPCP staff and the Diabetes Nurse Educator had a couple of face-to-face meetings and regular phone calls to facilitate communication during the planning and implementation stages of the intervention.

Although the DPCP was relatively "hands off," there was communication during the initial stages, including discussions about the principles of the DPPI-IFA, the purpose and methods of reporting on the Common Measures, and ways in which the Chronic Care Model could be applied to the intervention at the local level. The DPCP also provided a variety of resources about screening for and diagnosis of prediabetes but did not require that a particular screening method be used for the intervention and instead let Sutter Health and the partner organizations make the final decision.

Sutter Hospitals. Two of the Sutter Health hospitals participated in the DPPI-IFA intervention during Phase 2. For the purposes of reporting here, the primary partner is referred to as Sutter Health, and the secondary partner (the two hospitals) is referred to as Sutter Hospitals. These Sutter Hospitals have 4,000 employees in three separate shifts who were targeted for the intervention.

Some of the Sutter Hospitals physicians were trained by the Diabetes Nurse Educator in prediabetes and made up an informal network of prediabetes-knowledgeable physicians to whom DPPI-IFA could refer those at risk for diabetes if they did not have their own primary care provider.

Staffing. No particular Sutter Hospitals staff were identified as key to implementing this effort because of their relatively limited involvement with planning or decision making. The Diabetes Nurse Educator was already a part of the Sutter Hospitals network of health care professionals and obtained permission from management to initiate the DPPI-IFA within Sutter Hospitals.

Previous work with diabetes or other prevention programming. Sutter Hospitals hosts a variety of disease prevention and management programs, but this was the first prediabetes work they had done.

First Northern Bank. First Northern Bank is one of the worksites Sutter Health had worked with previously and the other site selected to participate in the DPPI-IFA intervention. First Northern Bank has 273 employees at 17 sites in the region. Sutter Health is a major health system in its area, and many First Northern Bank employees have a primary care provider at a Sutter Health facility. Prior to the DPPI-IFA intervention, many staff had already conducted a health risk assessment as part of their employee wellness program with Sutter Health, providing Sutter Health with background information about the health status and needs of First Northern Bank employees.

Staffing. The human resources department at First Northern Bank oversees employee wellness, and a human resources representative was the primary point of contact for Sutter Health. However, the human resources representative's involvement was limited to coordinating some of the logistics, such as sending e-mails and securing space for screenings and educational sessions. As described below, timing was limited for implementation during Phase 2 and prohibited extensive collaboration between the Diabetes Nurse Educator and First Northern Bank staff.

Previous work with diabetes or other prevention programming. First Northern Bank had not participated in prediabetes activities prior to the DPPI-IFA intervention. However, they had hosted previous health promotion activities, such as flu shots, health assessments, discounts to local gyms, and Weight Watchers programs at work.

Why partner was interested in DPPI-IFA. Results from health assessments conducted by Sutter Health for First Northern Bank employees indicated that the employees were above the national average for diabetes and high blood pressure. A contact at First Northern Bank said, “[W]e’re a pretty sit-down business, so that affects health.”

E.2.1.2 Description of Phase 2 Intervention

The Phase 2 intervention incorporated screening for prediabetes, followed by referral and education for those at risk. To accommodate a required Institutional Review Board (IRB) review by Sutter Health, the start date of the intervention was delayed. This delay resulted in a short turnaround for implementing the screening and diabetes education.

Targeted Population. All 273 First Northern Bank employees were targeted for recruitment into the DPPI-IFA intervention. Sutter Hospitals had 4,000 employees who were targeted for recruitment.

There are no discernible population characteristics that made these communities high risk. However, First Northern Bank had been identified by Sutter Health through health risk assessments as being above the national average in diabetes and high blood pressure.

Recruitment Strategies. To accommodate the tight timeline for implementation of the screening and education components, recruitment activities were limited to e-mails from the First Northern Bank and Sutter Hospitals human resources departments informing employees of the intervention; First Northern Bank employees also received hard-copy letters. Many employees at First Northern Bank had already completed a health risk assessment through Sutter Health’s marketing efforts at the bank. Many employees at Sutter Hospitals had not completed a health risk assessment, so they were asked to do so over the Internet.

How Interventions Were Chosen and Their Evidence Base. As described above, DPCP and the Diabetes Nurse Educator decided that the intervention would be implemented in worksites and that it would incorporate screenings, referrals, and an education component. They used the National Diabetes Education Program’s (NDEP’s) *Small Steps, Big Rewards* recommendations for the screening process and the DPP curriculum. The *Small Steps, Big Rewards* curriculum was condensed into four 2-hour sessions.

Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base. The short time frame between initiation of the intervention and implementation of the lessons required that the class be open to anyone who was interested, prior to screening. However, because the recruitment letters and e-mails included the risk assessment questions from *Small Steps, Big Rewards*, many people self-screened before inquiring about the program. Twenty-three employees and 6 spouses/ partners from both sites enrolled in the intervention and completed the paper risk test; 5 of those people screened already knew they had diabetes, 1 had prediabetes, and 14 out of the remaining 17 were at risk

based on the *Small Steps, Big Rewards* criteria. All of those considered at risk were referred to their own health care provider or to one at Sutter Hospitals. (Sutter physicians had already been trained by the DPPI-IFA about prediabetes and the referral process.) However, only 8 of the 14 people completed an oral glucose tolerance test (OGTT) because the physicians for the other 6 felt that an OGTT was unnecessary. Three of the eight screened with OGTT were diagnosed as having prediabetes. An additional two persons were diagnosed with prediabetes by their physician based on a fasting blood glucose. One individual entered the program with a prior diagnosis of prediabetes.

Systems for Tracking and Follow-Up of Participants. An informal tracking system was in place for Phase 2 because there were so few participants and because the Diabetes Nurse Educator was able to identify participants who were screened and their results.

Data Systems for Evaluation. A spreadsheet was created by the Diabetes Nurse Educator at Sutter Health to document the number of people who completed the paper screen, got an OGTT, took part in the educational class, lost weight, and did at least 150 minutes of physical activity a week. These data were self-reported by the 15 people who completed the class.

E.2.1.3 Phase 2 Results (Sutter Hospitals and First Northern Bank)

Individual Level (Screening). As shown in *Exhibit E-2*, the 15 participants who completed the class had an average self-reported weight loss of 4.3%, and 53.5% reported being physically active for at least 150 minutes per week.

E.2.2 Sutter Health Intervention at Sacramento Bee Newspapers

The intervention implemented in Phase 3 built off the Phase 2 efforts. The curriculum was altered slightly to accommodate the scheduling needs of Sacramento Bee Newspapers, more in-kind resources were available, and there was an on-site clinic for screening activities.

Exhibit E-2. Results: Individual Level (California Phase 2)

Intervention Phase	Measure	n	Common Measure or Other	Notes/Definitions
Screening	Number of participants in the target audience	4,273	O	There are 273 First Northern Bank employees and 4,000 Sutter Hospital staff.
	Number reached through awareness activities	4,273	O	All reached via e-mail; First Northern Bank also sent letters.
	Number recruited for screening	17 (0.4%)	O	An additional 5 persons who already had diabetes and 1 person with prediabetes were screened (thus, total screened = 23).
	Number at high risk	14 (82%)	C	NDEP criteria
	Number who followed up for screening	14 (100%)	C	Eight received an OGTT, and six received fasting blood glucose.
	Number for whom results are available	14 (100%)	O	
	Number with prediabetes Number with diabetes Number with normal results	5 (36%) 0 9	C	Three persons diagnosed by OGTT and two persons by fasting blood glucose.
Pre-DM intervention	Number enrolled in intervention	23	C	All persons who were screened (including 5 persons with known DM) enrolled.
	Number that completed intervention	15 (65%)	O	
Outcome data	Average percentage weight loss	4.3%	C	Data reported by the intervention and were not available for review.
	Percentage reporting at least 150 minutes of physical activity	53.5%		
Clinical follow-up for DM cases	Number of newly diagnosed persons with DM referred to primary care		C	N/A
	Number referred who contacted primary care		C	N/A

Note: C = Common Measure; O = Other Measure; DM = diabetes mellitus; N/A = not applicable; NDEP = National Diabetes Education Program

E.2.2.1 Key Stakeholders in Phase 3

Sutter Health. Sutter Health was the primary partner in Phase 3 (see Section E.2.1.1 for a description of Sutter Health).

Sacramento Bee Newspapers. Sacramento Bee Newspapers is a large organization in the heart of Sacramento, California, that employs approximately 1,600 people. The organization has an occupational health facility that houses a full-time and a part-time nurse, as well as a part-time physician. These medical providers address a variety of occupational health issues, as described below.

Staffing. Four main staff at the Sacramento Bee contribute significantly to the DPPI-IFA intervention—one in human resources and three occupational health clinical staff:

- Health and Welfare Manager in Human Resources
- Employee Health Manager in Occupational Health (RN)
- Employee Health Coordinator (RN)
- Physician/Medical Director

These staff acknowledge that having an on-site medical center has many benefits, including reducing barriers to care and facilitating a better understanding of their population. Their familiarity with the population helped them identify the need for assistance with prediabetes issues and tailor the program to meet employees' needs.

Previous work with diabetes or other prevention programming. The Sacramento Bee had no history of work in prediabetes prior to the DPPI-IFA but has conducted other activities in disease prevention. They host a variety of health promotion events, many of which came through Sutter Health, including a walking campaign, brown bag lunches about various health issues, health fairs during open enrollment for health coverage, and health screenings. To be responsive to Occupational Safety and Health Administration requirements, they also have conducted hearing screenings for employees who work near loud machinery. In part because of these activities, Sacramento Bee staff said they already had an effective and positive relationship with Sutter Health before the DPPI-IFA.

Why partner was interested in DPPI-IFA. Staff at the Sacramento Bee became aware of the DPPI-IFA after asking the Sutter Health marketing department about health promotion programs that would suit their population. They had observed a rise in blood pressure and increased prevalence of weight gain in their employees and even raised concerns about the onset of diabetes in the future. This led to discussions with the Sutter Health marketing department about diabetes primary prevention, and the Diabetes Nurse Educator was notified by the Sutter Health marketing representative.

E.2.2.2 Description of Phase 3 Intervention

Much of the recruitment and screening activities were conducted by the Sacramento Bee human resources and occupational health departments, but the intervention itself was led by the Sutter Health Diabetes Nurse Educator. After recruitment and screening with OGTT (described below), the Diabetes Nurse Educator provided the 16-week DPP curriculum during lunchtime for day-shift employees. These lunches were provided by Sacramento Bee, free to participants, with an emphasis on being low in fat and calories. This healthy meal also was provided in the main cafeteria for all employees at Sacramento Bee.

Targeted Population. About 1,600 employees at Sacramento Bee Newspaper were the target for the DPPI-IFA; however, only about 745 have Aetna health insurance that would cover the costs for the intervention. Employees without Aetna coverage were asked to pay for their screening co-pay; however, because only one participant had Aetna coverage, the cost of her co-pay screening was covered by the Sacramento Bee. There are no population characteristics that make this community higher risk for diabetes than the general population.

Recruitment Strategies. A 4-week awareness-raising period was held at the Sacramento Bee. Human resources and occupational health staff distributed e-mails, letters, and flyers, and DPPI-IFA information was displayed on monitors throughout the buildings. The recruitment strategies also included a Sacramento Bee–sponsored awareness luncheon, with a PowerPoint presentation about prediabetes and the DPPI-IFA. It was estimated that about 40 to 50 people attended the luncheon. The human resources department was involved with the recruitment process because many of these activities had to be cleared by the administration.

How Interventions Were Chosen and Their Evidence Base. As with Phase 2, the *Small Steps, Big Rewards* screening recommendations and the DPP curriculum were used for the Phase 3 intervention.

Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base. Screening for the DPPI-IFA intervention at Sacramento Bee began in the recruitment process, because the e-mails and flyers included the NDEP risk questions, allowing people to self-screen using the recruitment materials. Individuals who believed they were at risk and were interested in the DPPI-IFA intervention were referred to the occupational health office for a more formal screening using the 16-question risk screening tool developed by the DPPI Surveillance Focus Area. Employees who were considered to be at risk per the Surveillance Focus Area's screening algorithm tool were invited for OGTT at the occupational health office. Two additional people who did not fit into the high-risk category based on the NDEP paper test were allowed to take the OGTT because they had a body mass index (BMI) score just one point under the at-risk level or had high cholesterol.

Systems for Tracking and Follow-Up of Participants. The spreadsheet developed by the Sutter Hospital nurse and used in Phase 2 was further adapted in Phase 3 by epidemiologists on the DPCP staff. Patient characteristics were added to the spreadsheet to evaluate different algorithms for identifying persons at high risk; essentially, Surveillance Workgroup members used this as an opportunity to pilot some of their work testing various algorithms. If the patients were shown to be at risk on any of the algorithms tested in the Surveillance Focus Area's spreadsheet, the patients were referred to the DPPI-IFA intervention.

Data Systems for Evaluation. This intervention was midway through implementation at the time of the site visit. The Diabetes Nurse Educator has used the spreadsheet developed in Phase 2 to document the number of participants; the number who finished treatment; and the outcomes measured, such as weight loss and increased levels of physical activity. Additional evaluation tools may be used, but none were discussed at this time.

E.2.2.3 Phase 3 Results: Individual Level

Exhibit E-3 presents the results for the screening conducted at the Sacramento Bee.

E.3 Results at Community or Organizational Levels (Phases 2 and 3)

The DPPI-IFA program has helped put prediabetes at the forefront of key preventive issues for Sutter Health administrators and health care providers. The Diabetes Nurse Educator suggested that simply being a part of the DPPI-IFA program helped validate work in prediabetes for the Sutter Medical Foundation. The topic of prediabetes screening and education has been elevated as a primary concern at the Sutter Diabetes Strategy meetings, and staff have discussed possible ways to continue prediabetes screening and interventions after DPPI-IFA funds are terminated.

Additionally, the Sacramento Bee cafeteria has adopted healthier practices and provides diabetes-healthy meal options. The cafeteria also labels some of its food with other nutritional information to help employees maintain a healthy weight.

Overall, the Diabetes Nurse Educator has received positive feedback about the educational sessions, and participants in Phase 2 told her they had gained important information about nutrition and physical activity and how they can help prevent the onset of diabetes. Only preliminary data are available for Phase 3; however, Phase 2 results demonstrate a slight decrease in weight among the participants and an increase in physical activity for at least 150 minutes per week.

Exhibit E-3. Results: Individual Level (California Phase 3)

Intervention Phase	Measure	n	Common Measure or Other	Notes/Definitions
Screening	Number of participants in the target audience	1,600 or 745	O	There are 1,600 employees at Sacramento Bee, and all could be enrolled, but only about 745 have Aetna health insurance that would cover the costs for the screening.
	Number reached through awareness activities		O	Unknown
	Number recruited for screening	46 (2.9%)	O	
	Number at high risk	38 (83%)	C	
	Number who followed up for screening	40 (>100%)	C	40 got OGTT (38 high risk plus 2 more because they had a BMI of 24 or had high cholesterol).
	Number for whom results are available		O	Lab work for 7 people was destroyed, so final results are not yet available.
	Number prediabetes Number diabetes Number normal	6 (15%) 0 Unknown	C	As of January 2008, at least six people were diagnosed with prediabetes.
Pre-DM intervention	Number enrolled in the intervention	45 referred 38 enrolled (80%)	C	45 people were referred, which was everyone who reported for screening, with one exception; 38 enrolled.
	Number completed intervention	Ongoing	O	
Outcome data	Average percentage weight loss Percentage reporting at least 150 minutes of physical activity	Ongoing	C	
Clinical follow-up for DM cases	Number of newly diagnosed persons with DM referred to primary care		C	
	Number referred who contacted primary care		C	

C = Common Measure; O = Other Measure; DM = diabetes mellitus; OGTT = oral glucose tolerance test

E.4 Tools Used or Developed by the State

DPCP staff and the Diabetes Nurse Educator referred to many resources to help guide their screening and recruitment, including the NDEP and NDDP materials and Chronic Care Model

concepts, but they ultimately chose the *Small Steps, Big Rewards* screening recommendations and DPP educational materials.

The Diabetes Nurse Educator developed a spreadsheet that was used for both intervention phases to document participant information that was used for the Common Measures. Sacramento Bee staff were responsible for entering data into this spreadsheet and felt that it was easy to use and effective for reporting data. Also, the Diabetes Nurse Educator, independently and with Sacramento Bee staff, developed recruitment materials, including a PowerPoint presentation for raising awareness about the DPPI-IFA.

The DPPI Surveillance Focus Area developed a paper screening tool for assessing risk of prediabetes. This tool was used in Phase 3 and will be compared with the NDEP paper test.

E.5 Facilitators to Success

E.5.1 Partnerships

Partnerships between the Intervention Lead and the Diabetes Nurse Educator, and between the Diabetes Nurse Educator and secondary partners, were key to effective planning, implementation, and tracking of the DPPI-IFA intervention. The Intervention Lead and the Diabetes Nurse Educator worked collaboratively in the initial stages of planning, and then the Diabetes Nurse Educator worked somewhat independently during the stages of implementation of each intervention. DPCP staff felt that working with a competent and driven partner was critical to the DPPI-IFA intervention.

Similarly, it proved to be extremely beneficial to work with an occupational health office within an organization that values health promotion and prevention. The Sacramento Bee provided the administrative and personnel support necessary to implement the program. All of the lab work was conducted on-site by Sacramento Bee nurses and physicians. They also made themselves available to staff to talk about participants' results and to talk about the issues of diabetes and prediabetes.

E.5.2 Tracking Tool for Documenting Common Measures

The Diabetes Nurse Educator developed a spreadsheet to track program participants throughout the intervention, and she trained the Sacramento Bee staff to use the spreadsheet. The staff suggested that having a straightforward, easy-to-use system for tracking was extremely useful and facilitated monitoring of the program.

The Intervention Lead suggested that some of the process measures were not particularly useful and that DPPI-IFA did not report on these measures because they were optional.

E.6 Challenges

E.6.1 State-Level Challenges

The greatest challenge, from the Intervention Lead's perspective, was the amount of funding available to implement the program. DPPI-IFA funds went primarily to covering the hours for the DPCP and the Diabetes Nurse Educator during the planning and implementation stages. There was not enough funding to cover staff time and all of the resources for recruitment and implementation at the partner sites.

E.6.2 Partner-Level Challenges

Again, the greatest challenge was related to the limited funding. For Phase 2, the partners offered little in-kind funding. However, during Phase 3, the Sacramento Bee provided a substantial amount of in-kind support via donated staff hours, lab supplies, and coverage of employees' insurance co-pays.

Enrollment was low in both phases of the intervention. At First Northern Bank, only 4 employees signed up for screening; and at the Sacramento Bee, only 46 of the 1,600 employees took the paper test, and 40 were screened using the OGTT. The Diabetes Nurse Educator suggested that it would be informative to survey employees about reasons for their lack of interest in free prediabetes screenings. She said she thinks some people with prediabetes already know they are at risk and do not feel the need to "prove" it with numbers and tests.

It is challenging to schedule classes at worksites for two primary reasons: (1) it requires a significant amount of time to attend the education sessions; and (2) if the worksite has multiple shifts, some employees are not working at the time the sessions and/or screenings are provided. This scheduling issue resulted in modification of the DPP curriculum to fit into the tight time frames requested by the worksites (for example, in Phase 2, the *Small Steps, Big Rewards* curriculum was adapted to four 2-hour sessions).

Another challenge was the short time frame for Phase 2. One of the reasons for the tight time frame in Phase 2 was the IRB clearance process by Sutter Hospitals. It would have been helpful if CDC had provided a letter indicating that the DPPI-IFA is not research.

E.7 Lessons Learned

The most valuable lesson for the DPCP and for the partners was to work with competent, independent, and motivated partners. The Intervention Lead felt that the Diabetes Nurse Educator was a key to the success of the intervention. Similarly, both Sutter Health and Sacramento Bee staff felt that each other's contributions were the greatest factor to the program's successes. Sacramento Bee staff said that "[a]ll the players were perfect for this whole thing. Got to have the right people. No push and shove; it was organized and collaborative."

All partners also felt that the amount of money provided through the grant was insufficient for full implementation of the DPPI-IFA intervention and that the in-kind contributions were essential. Having good partners with an administration that supports the efforts made everything possible.

E.8 Future Work in Diabetes Primary Prevention and Sustainability of Current Intervention

The current DPPI-IFA intervention will not be sustained by the DPCP, the primary partners, or the secondary partners without DPPI-IFA funds. However, all partners expressed an interest, if not a commitment, to continuing their efforts in diabetes primary prevention. The DPCP suggested that there could be future work with Sutter Health but with a different focus than their current interventions. Instead of working with worksites, and expecting worksites to take on the additional burden of screenings and their related costs, the Intervention Lead would like to work with Sutter Health physicians to integrate prediabetes screening into the systemized screening process. He feels it is more feasible for a clinical setting to incur these costs and thus sustain these efforts.

Sutter Health also would like to continue working on prediabetes, and Sutter Health providers appear willing to work with patient systems to address prediabetes. Prediabetes is now on the agenda for the Diabetes Strategy Meetings, and Sutter Health staff have begun to talk about how to integrate programs for the hospital system in the long term. Sutter Health is also educating physicians and staff about how to diagnose and treat prediabetes. It is unclear exactly what will happen without DPPI-IFA funding, but Sutter Health is committed to continuing its efforts to address prediabetes, whether through the DPPI-IFA or through another initiative.

Sacramento Bee staff will continue to provide education related to diabetes primary prevention, and they may incorporate the NDEP paper risk screen. However, they will not sustain the screening or curriculum.

APPENDIX F: SITE-SPECIFIC SUMMARY: MASSACHUSETTS

From July through September 2007, five 2-day site visits were conducted to the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA) states (i.e., California, Massachusetts, Michigan, Minnesota, and Washington). A range of 6 to 13 participants were interviewed in each state, for a total of 57 persons in 29 interviews. This included 14 Diabetes Prevention and Control Program (DPCP) staff, 6 other state health department staff, and 37 partners. This appendix summarizes DPPI-IFA activities in Massachusetts.

F.1 DPCP Infrastructure

The Massachusetts DPCP is located within the Massachusetts Bureau of Family and Community Health. It is funded primarily through Centers for Disease Control and Prevention (CDC) program funds, although it does receive some state funding. Massachusetts is currently involved in two DPPI focus areas (Interventions and Surveillance), but this report focuses on the IFA.

F.1.1 Staffing

Exhibit F-1 outlines the key DPCP staff involved in implementing IFA activities. Although four DPCP staff have been involved with various aspects of the DPPI-IFA, it is important to note that IFA funds only paid for staff time for the Health Systems Specialist. The remaining staff time is paid out of other program funds. However, DPPI-IFA funding is used to pay for all travel-related expenses for attendance at DPPI-IFA meetings.

F.1.2 Funding

Exhibit F-2 summarizes the funding available to the DPCP for the three phases of the DPPI-IFA effort.

F.1.3 Previous Work in Diabetes Primary Prevention

Although the DPCP had not worked directly in diabetes prevention activities before the DPPI-IFA, they did participate in the Diabetes Prevention Program 3 (DPPP3), which provided recommendations related to the development of diabetes primary prevention projects. The DPCP also participated in the Diabetes Detection Initiative working with communities in western Massachusetts to raise awareness and promote screening for type 2 diabetes.

Exhibit F-1. Massachusetts DPCP Staff Involved with the DPPI-IFA

Title	Role/History with MA DPCP	% Time on DPPI-IFA	Activities
Health Systems Specialist	Leads IFA work in Massachusetts	65%	<ul style="list-style-type: none"> • Primary point of contact for IFA work with other funded states • Identify and work with key partner, Diabetes Association, Inc. • Coordinate activities taking place locally
DPCP Program Director	Coordinates all aspects of DPCP activities	~13%	<ul style="list-style-type: none"> • Chairwoman of DPPI-IFA Executive Committee since June 2007 • Does not work directly with the IFA
Program Evaluator	Evaluation expert for all of DPCP	~45%	<ul style="list-style-type: none"> • Lead for DPPI SFA • Conducts evaluation of IFA as a part of her evaluation role with DPCP (but not paid through DPPI funds)
DPCP Program Assistant	Assistant to other DPCP staff	~5%	<ul style="list-style-type: none"> • Coordinates all DPPI-IFA travel for DPCP staff • Helps coordinate any DPPI-IFA meetings held in Massachusetts • Not paid through DPPI-IFA funds

Note: DPCP = Diabetes Prevention and Control Program; DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area; SFA = Surveillance Focus Area

Exhibit F-2. DPPI-IFA Budget: Massachusetts

	Total	Staff	DPCP Travel	Supplies/Other	Funds to Partner/ Cost of Interventions	Notes
Phase 1 (05–06)						
CDC funds	\$176,240 ^a	\$47,846	\$5,530	\$5825		Costs estimated only for IFA staff, travel, and supplies
DPCP funds/ in kinds	\$44,060 ^b	\$6,913		\$37,147 ^c		Staff time was for DPCP Director’s time; supplies not specific to IFA
Partner in kinds						
Phase 2 (06–07)						
CDC funds	\$176,240 ^a	\$55,504	\$7,285	\$1,949	\$40,000 (carryover funds)	Costs estimated only for IFA staff, travel, and supplies
DPCP funds/ in kinds						
Partner in kinds ^d				~\$520 - Southcoast screening funds Donation of running shoes and YMCA membership		
Phase 3 (07–08)						
CDC funds	\$127,594 ^a	\$56,240	\$2,880	\$750		Costs estimated only for IFA staff, travel, and supplies
DPCP funds/ in kinds						
Partner in kinds						

^aThe DPPI budget and CDC funds include costs for both the Interventions Focus Area (IFA) and the Surveillance Focus Area. In an effort to isolate funding just for the IFA in the other categories, we have attempted to divide the travel and supply costs and only included salary information for the staff person who coordinates the IFA.

^bMatching funds from state and external partner for entire DPPI effort, not just IFA.

^c\$25,000 was matched by the MDPH Office of Primary Care to fund diabetes primary prevention related efforts at community health centers. An additional \$12,147 was contributed by the Massachusetts League of Community Health Centers to be used for meeting space and resource materials.

^dIt was not possible to obtain an estimate of in-kind donations by the lead partner, DAI. However, qualitatively, this partner reported a significant amount of staff time, effort, and resources that went above and beyond the funding provided to them from the DPCP.

F.2 Description of Key Partners and Description of Interventions

DPCP staff decided to implement their intervention at a worksite, because they had some experience working with worksites through their state Diabetes Coalition of Massachusetts work and believed it would be a good venue for reaching at-risk adults. Although the DPCP originally explored the possibility of implementing this intervention with employees at the Massachusetts Department of Public Health (MA DPH), they sought out a smaller business in southeastern Massachusetts that had a higher prevalence of diabetes compared with the rest of the state. The goals of the intervention were to

- raise awareness about risks for type 2 diabetes and spread prevention messages at a worksite in southeastern Massachusetts;
- through process and outcome evaluation, identify barriers and components necessary for successful implementation of primary prevention strategies in a nontraditional setting, such as the worksite; and
- identify key stakeholder partners and better define the role of the DPCP in coordinating primary prevention interventions.

F.2.1 Key Partners

F.2.1.1 Diabetes Association, Inc.

To implement their worksite intervention, the DPCP drew from lessons learned from their experience with the U.S. Department of Health and Human Services Diabetes Detection Initiative and sought to identify a strong community organization with whom to partner. Given the target geographic area, the DPCP identified Diabetes Association, Inc. (DAI), of Fall River, Massachusetts, as the key partner for this intervention. DAI is an organization with which the DPCP has a longstanding working relationship, so DPCP staff were very familiar with DAI's capabilities and resources to complete this important project. Additionally, the DPCP had an existing contract with DAI that could be modified to include the DPPI-IFA intervention work. The existing contract with DAI proved to be critical to meet the timeline CDC hoped to adhere to for planning and implementing the intervention because developing and executing a new contract could have taken months in the state contracts system.

DAI has been a recipient of DPCP funds for approximately 8 years. DAI's role has primarily been to conduct activities in the area of outreach programming for adults, including diabetes education in the community, churches, and civic groups and at their office, located in downtown Fall River. Originally started by parents of children with type 1 diabetes to establish summer diabetes camps, DAI has served Fall River and surrounding communities since the 1970s. It is funded through private donations and various foundation and government contracts.

Given the ongoing relationship between the DPCP and DAI, both organizations indicated it was a natural fit to partner on this effort. Because DAI had previous experience with a worksite diabetes intervention, they sought to apply what they had learned and expand their knowledge and capabilities to work with worksites and employers. This effort was also consistent with DAI’s work to move toward a systems-level approach to address the diabetes epidemic. There was also the sense that by participating in this effort, DAI would improve their standing and reputation to implement these types of programs, making them better positioned for future funding opportunities.

DAI involved a large number of their staff in the development and implementation of this worksite intervention. The key staff involved are highlighted in **Exhibit F-3**. In addition to DAI staff, DAI hired several consultants to assist in developing the intervention curriculum and implementing the intervention.

Exhibit F-3. Key DAI Staff

Title	Role/History with DAI
Executive Director of DAI	<ul style="list-style-type: none"> • Responsible for all operations of DAI • Has worked on diabetes issues for 15 years • Represents DAI on Statewide Diabetes Coalition • Works closely with Partners for Healthier Community (for Fall River) • Leader on Healthy Fall River Initiative
Adult Diabetes Advocate	<ul style="list-style-type: none"> • Lead contact and peer educator at Lightolier during intervention • Runs other adult diabetes support groups at DAI • Prior work as community organizer for Fall River and surrounding communities
Adult Program Coordinator	<ul style="list-style-type: none"> • Peer educator at Lightolier • Joined DAI during implementation of intervention

DAI has a history of working with worksites around diabetes. Both DPCP and DAI staff saw this experience as valuable in recruiting and establishing a relationship with another local employer to conduct a diabetes primary prevention intervention. (It may be worth noting that it was not possible for DAI to return to an employer it had worked with previously, Quaker Fabrics, because it had since closed its facility.) For this intervention, DAI was able to expand upon an existing relationship with a local employer, Lightolier, that they had worked with previously on health fairs.

F.2.1.2 Lightolier

Lightolier is a Fall River–based organization that employs approximately 600 staff in the manufacture of lights and lighting equipment. It includes both union and non-union

(management) staff and currently runs two operational shifts. A large percentage of employees are Portuguese or Cape Verdean, although most if not all employees are English speaking.

DAI worked closely with the Lightolier Occupational Health Nurse to gain entrée to Lightolier and throughout implementation of the intervention. The relationship with this individual proved to be a critical link to the Lightolier human resources department and upper-level management who quickly signed onto and supported this effort. She also served an important advisory role during development of the intervention to ensure that it did not result in significant lost production time for the company, a key concern for management that had to be addressed before the intervention could be implemented. The Occupational Health Nurse also took a very hands-on role in implementing the screening process, disseminating recruitment materials (e.g., e-mails, paycheck inserts), and collecting participants' weights during the intervention.

Lightolier was described as an organization that values the health and wellness of their employees, thus making them more open to participating in this type of intervention. They had previously done some work with the Dana Farber Cancer Institute on cancer prevention and had conducted a lunch-and-learn on diabetes with DAI, so they have a track record of being open to addressing employees' health-related issues. As mentioned above, a key concern for the company was ensuring that the intervention did not interfere with production on either of the two shifts it runs. Therefore, DAI had to develop an intervention implementation structure where participants could attend as much as possible on their own time (e.g., before work, during lunch breaks).

F.2.1.3 Southcoast Hospital Systems

The third major partner in this intervention was Southcoast Hospital Systems, which donated services for the on-site screening component of the intervention. Existing relationships were again important in leveraging this resource. The primary contact for this intervention was the Southcoast Hospital Systems Vice President for Outpatient Specialty Services and Director of the Diabetes Outpatient Program, who also serves as President of the DAI Board of Directors. Southcoast Hospitals has conducted numerous community-based diabetes screenings in the Fall River area. They worked with DAI and Lightolier to develop a screening protocol that would meet the needs of the partners and participants and donated all of the supplies and staff time needed to conduct the on-site screening at Lightolier.

Nature of the Partnership. To a large extent, the DPCP allowed DAI to take the lead on development and implementation of the intervention. DPCP staff served in a largely advisory role, providing direction and recommendations from the DPPI-IFA Steering

Committee. DAI was responsible for recruiting the local partner, tailoring the DPP curriculum, implementing the intervention, and collecting data from participants.

Communication Strategies Used between DPCP and Partners. Although a formal communication plan was not developed for this intervention, communication between all partners appears to have been conducted on an as-needed basis using a combination of face-to-face meetings, e-mail, and telephone. The DPCP communicated primarily with DAI, who then communicated with local partners. However, there was some communication between DPCP and local partners during the planning stages, including a face-to-face meeting between DPCP staff and Southcoast Health System to discuss project goals and objectives.

Technical Assistance from DPCP to Local Partners or among Partners. Because all of the partners involved in this effort were very experienced in conducting this type of work, minimal technical assistance was required or requested from the DPCP. However, assistance was provided regarding evaluation and data management. DPCP staff developed several data tracking tools for use by local partners during and after the intervention. It appears that these were a bit overwhelming to local staff, so DPCP traveled to Fall River and provided one-on-one training on these tools. As discussed later in this report, evaluation and data management is one area where, in hindsight, the DPCP believes additional assistance may have been helpful to ensure that data were collected on an ongoing basis.

F.2.2 Description of the Intervention

F.2.2.1 Population at Risk

Who They Were. This intervention sought to reach residents of southeastern Massachusetts who are at high risk for prediabetes and diabetes. Southeastern Massachusetts was selected in part because the regional prevalence for diabetes is 9% in this area compared with 6% in the rest of the state. This geographic area contains a large number of Portuguese and Cape Verdean residents. These cultures are relatively similar and allowed for broad tailoring of messages and information so they would resonate and appeal to these residents. Although messages needed to be tailored, all of the Lightolier employees were English speaking, so materials did not need to be translated into Portuguese. Additionally, DAI was very fortunate to have staff of Cape Verdean descent who were involved in the intervention and to whom participants could relate.

Within Lightolier, where the intervention was implemented, both union and non-union employees were encouraged to participate and considerations were made to identify an intervention structure that would involve both professional and line workers.

How They Were Identified. All Lightolier employees were eligible to participate in the awareness-raising component of the intervention, which included education and the

opportunity to be screened for prediabetes with both the American Diabetes Association (ADA) paper test and a fasting capillary glucose test. All staff were allowed to enroll in the intervention, but those identified as at risk for prediabetes were strongly encouraged to participate. Those with a fasting capillary glucose over 100 were required to obtain their doctor's permission to participate.

F.2.2.2 Description of Intervention

The intervention consisted of two phases: (1) an awareness-raising phase, which included on-the-job diabetes screening; and (2) a 9-week education and behavior modification class held at the Lightolier facility.

Awareness-Raising Phase. DAI staff conducted various events in the Lightolier cafeteria three times a week for 3 weeks. Activities included an information table as well as various interactive activities, such as Diabetes Monopoly and Nutrition Bingo, that staff could participate in and win prizes (e.g., coupon for free meal at the cafeteria, pedometer). DAI staff interacted regularly with employees, something many respondents we spoke with felt was critical to building interest and trust. Lightolier also invited the media to attend the events and was highlighted in a front page article in the local newspaper. It is important to note that these activities were conducted during first shift only because the cafeteria is closed during second shift. For second-shift employees, the awareness-raising portion of the intervention consisted of a 1-night event where employees were provided dinner and DAI staff gave an awareness-raising presentation about prediabetes and fielded employee questions.

Screening. At the completion of the awareness-raising phase, several on-site screening events were held. For first-shift employees, a 2-day screening was conducted. On the first day, staff were administered the ADA paper test, and weight and blood pressure readings were obtained. Those shown to be at risk were then asked to return the next day for a fasting capillary glucose prior to the start of their shift. For second-shift employees, staff were administered the ADA paper test, and weight and blood pressure readings were collected at the awareness event. They too were asked to return the next morning for a fasting capillary glucose. Additional details of the screening are included in "Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base."

Intervention Phase. All persons who had a fingerstick glucose test >100 mg/dL were eligible for the intervention; other persons were also enrolled, either because they were high-risk based on the ADA test or because they had an elevated BMI. Participants also had to have physician permission to participate in the intervention. Participants received a modified version of the DPP 16-week curriculum. DAI hired a consultant to modify and reduce this evidence-based curriculum to a 9-week curriculum—"Move, Lose, Prevent Diabetes"—that could be administered on-site within the timeline available. Classes were

held between the first and second shifts to minimize time away from work. This was also a time when non-union employees could attend and use their lunch break time, again to reduce loss of productivity. The curriculum included nutrition and physical activity components. In addition to the classes, DAI staff served as peer coaches to Lightolier staff, including those not enrolled in the intervention. Staff could sign up to meet with DAI staff and have one-on-one or small group meetings to have questions answered or just get support. Both peer educators are of Cape Verdean or Portuguese descent and both have diabetes, so there was the sense that Lightolier staff could relate to and were comfortable sharing their experiences and concerns.

Tailoring of Strategies for Recruitment and Implementation. Although this intervention was peripherally aimed at the large Portuguese and Cape Verdean population in Southeast Massachusetts, case study respondents indicated that there was not an overwhelming need to tailor materials or the overall approach. The tailoring that was done included ensuring that during the nutrition portions of the intervention, examples were made of how to improve the nutrition of traditional Portuguese or Cape Verdean foods and meals (e.g., changing the type of sausage to a turkey variety, limiting bread consumption with already carbohydrate-heavy meals, increasing the quantity and variety of vegetables in meals). Additionally, during the awareness phase, DAI staff demonstrated how to adapt traditional meals to be more healthy and showed employees how to find healthy alternatives or make requests to change meals on a menu to be more healthy when eating out.

Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base. As described above, from the interviews, RTI determined that two types of screenings were conducted. First, the ADA paper test was used to identify persons at high risk for diabetes. Most but not all of the persons who took the paper test also underwent a fasting capillary glucose. The results presented below are restricted to persons who took the fasting capillary glucose test. Persons with an elevated glucose (≥ 100 mg/dL) or a positive ADA test (and in two instances, an elevated BMI alone) were referred to providers for oral glucose tolerance testing (OGTT) and were referred to the intervention.

Systems for Tracking and Follow-Up of Participants. No tracking or follow-up was done for persons with an elevated screening test. Only in one case of a person with a fasting capillary in the diabetes range was there follow-up and information reported back to the program staff.

Data Systems for Evaluation. A spreadsheet was developed by the DPCP epidemiologist that contained results from both ADA and glucose screenings and BMI, as well as data elements of attendance at intervention sessions and pre- and post-weights. Only persons who enrolled in the interventions were entered into this spreadsheet.

F.3 Results

F.3.1 Community and/or Organizational Level

From an organizational perspective, all partners involved in this intervention indicated that they strongly believe it was a success. DPCP indicated that one of the goals of this work was to better understand the process of working with employers and expand upon their experience working with employers, and they believe that this work was successful in doing that. In some ways, DPCP believes that this work helped them establish that employers, insurance plans, and employees are interested in this issue and they are viable mechanisms for intervention in the future. However, when asked if they believe this work will impact DPCP's focus on diabetes primary prevention in the future, respondents indicated that this was yet to be determined and would depend significantly on what CDC asks them to do in the next funding cycle.

Staff at DAI also felt this was an extremely successful initiative in that it has further improved their position and expertise to conduct this type of work in the future and will make them better positioned to secure funding from other sources. A strong relationship was also established with an important community employer, which can be used for future work with Lightolier, as well as an example for expanded work with other employers in southeastern Massachusetts. DAI also spent extensive time and resources revising the DPP curriculum and developing a wide variety of materials for use in the DPPI-IFA intervention. DAI staff feel strongly that these materials will be used for future work in this area.

Finally, Lightolier staff believe that their involvement in this intervention was a success on several levels. There appears to have been an improved openness by management to continue their support of these types of efforts. Since the intervention was completed, Lightolier has supported the formation of a Weight Watchers at Work program, and participants had lost a collective 394 pounds at the time of these case study interviews. This support has included providing corporate funds for the Weight Watchers program. Lightolier also has been approached by Brown University to participate in another wellness grant, and Lightolier management is exploring this opportunity. It was reported that when management was approached about this opportunity, it did not take as much convincing to gain their interest and support, likely a result of the successful implementation of the DPPI-IFA intervention. Lightolier also received extensive publicity from the media about their involvement in the DPPI-IFA intervention, including recognition when the national Medicaid Bus tour chose Lightolier as its main stop in Massachusetts and numerous newspaper articles. Finally, Lightolier has instituted changes in the cafeteria menus so that they include low-fat, low carbohydrate options and feature a healthy meal choice with every meal.

F.3.2 Individual Level

Exhibit F-4 presents results available from the on-site screenings and interventions. Results for the percentage recruited for screening are presented for both the ADA paper test and the capillary test. However, because it is not known how many persons and which persons had one or the other test or both, the rest of the table is presented for just the 90 persons who had the glucose test as the denominator. As shown, 90 of the total 600 Lightolier employees received a fasting capillary glucose, of which 30 were identified as high risk for diabetes and referred to their health care provider for OGTT. Unfortunately, only one person successfully returned the results of their OGTT, and that individual was confirmed to have diabetes. Fourteen people successfully enrolled and completed at least four intervention sessions and were found to have lost on average 5.9 pounds during the intervention period.

Individuals who participated in the awareness and/or the intervention phase reported strong support for the program implemented. Anecdotally, staff shared that intervention and non-intervention participants have made changes in their diet and exercise habits. Additionally, some employees have taken the information they learned home, and now their families have adopted healthier behaviors. Examples of these changes included using skim milk instead of cream in their ice coffee (a beverage very popular in Massachusetts), selecting a salad instead of French fries, and reading nutrition labels in the grocery store. Employees were overwhelmingly supportive of the services that were provided during the awareness and intervention phases and have indicated that they wish that the intervention could have continued (something that DAI and DPCP are still exploring). It is also important to note that all employees were invited to participate in activities at DAI, while future intervention work at Lightolier is being worked out.

F.4 Tools Used or Developed by the State

DPCP staff reported that the most helpful tools were the IFA Charter and the Common Measures. Additionally, they drew from the ADA Diabetes at Work materials and the National Business Group on Health Web site (<http://www.businessgrouphealth.org/>). For the development of the intervention curriculum, partners adapted the DPP curriculum because they thought DPPI-IFA participants were required to use this curriculum.

DAI developed numerous materials for use in the intervention, including education and recruitment materials. These were developed based on their knowledge of the community and population they wanted to reach. DPCP also developed a Microsoft Access database and Excel spreadsheet to help DAI staff log and track participant data for the evaluation. (These tools are catalogued in Section 2.7.)

Exhibit F-4. Results: Individual Level (Massachusetts)

Intervention Phase	Measure	Value	Notes/Definitions
Screening	Number in target audience	600	Employee population
	Number (%) reached through awareness activities		
	Number (%) recruited for screening	110 for ADA risk test (18.3%) 90 for capillary screening	
	Number (%) at high risk	30 (33%)	Fasting capillary \geq 100 mg/dL
	Number (%) who followed up for screening	unknown	
	Number (%) for whom results are available	1 (3.3%)	1 person with fingerstick in diabetes range had follow-up and is confirmed to have DM
	Number (%) with prediabetes diabetes normal		
Pre-DM intervention	Number (%) enrolled in intervention	14 (48%)	All persons who had fingerstick > 100 eligible for the intervention (other persons also enrolled, either high risk by ADA test or high BMI)
	Number (%) who completed intervention	14 (100%)	All persons were analyzed as completed (100% attended 4 or more sessions)
	Outcome data:		
	Average % weight loss	3.6% (5.9 lbs.)	
	% reporting at least 150 minutes of PA	Not reported	
Clinical follow-up for DM cases	Number (%) of newly diagnosed persons with DM referred to primary care	1 (100%)	
	Number (%) referred who contacted primary care	1 (100%)	

Note: ADA = American Diabetes Association; BMI = body mass index; DM = diabetes mellitus; PA = physical activity

F.5 Facilitators to Success

Overwhelmingly, it appears that utilization of existing skilled partners was critical to the successful planning and implementation of this intervention, especially given the short time period for design and implementation. Without the existing partnerships between the DPCP and DAI, and DAI and Lightolier and other consultants, these partners were not sure whether this work would have been completed. Because DAI was able to work somewhat independently on many aspects of the intervention, they were able to move many of the pieces forward in a timely manner.

Having a strong relationship with the Occupational Health Nurse at Lightolier was also critical in gaining the support of management. She was also very helpful in providing insight into the design of an intervention that met the needs of employees, as well as the organizational leadership. Implementing the intervention in a way that minimized any distraction from production was critical to obtaining management buy-in. Thus, holding classes after first shift and at a time when people could use their lunch break to attend was very important. If classes had been held during production time, there is the sense that management would not have supported the intervention as fully.

Respondents overwhelmingly indicated the importance of the 3-week awareness phase. They believe it was very important to have DAI people at the worksite frequently so that a relationship could be built and trust established. Even those who did not participate in the intervention would come and talk with the staff there. Additionally, respondents felt it was important to have staff who were Portuguese and Cape Verdean because they could relate to the cultural norms and traditions of the employees and the challenges they were facing in modifying their food choices. Although all partners were pleased with having 14 staff enroll in the intervention, they clearly recognized the challenge between the significant amount of staff time and resources used to engage a relatively small number of employees.

F.6 Challenges

Although all partners we spoke with agreed that this effort was successful on a number of levels, there were clearly a number of challenges as well. Below we summarize some of the major challenges faced by state and local partners.

F.6.1 State Level

Implementing While Planning. Although DPCP staff appreciated the design of the DPPI-IFA, in allowing the states to plan the effort, it was often challenging because planning and implementation were often expected to occur at the same time. The process was described as “evolving,” which meant that they could not jump into an intervention completely because decisions about interventions were still being made during the time when they were to be simultaneously implemented. This challenge was exacerbated with the tight timeline during which an intervention was supposed to be designed and implemented. This is discussed in greater detail under Section F.6.2.

Setting a Screening Protocol. A somewhat related challenge was deciding on an appropriate screening methodology. Although the DPCP had their own ideas about how screening should be implemented, there was still a lack of clear expectations on behalf of CDC regarding a community-level screening process and protocol. This lack of clear guidance led to much debate by both DPCP and partners as to how the screening component of this intervention should be implemented.

F.6.2 Partner Level

Timelines. The timeline for development and implementation of the intervention appears to have been the greatest challenge discussed by the partners. For example, from the time DAI was approached by the DPCP to when the intervention was completed was only 8 months. Partners would have preferred to have a year for planning and 6 months for implementation, but the DPPI-IFA timeline did not allow for that. Although the intervention was completed on time, this timeline placed significant stress and burden on the partners to the extent that if a similar timeline was necessary in future collaboration, one partner would opt not to be involved.

Timeliness of Information. Partners sometimes felt that, because of the “implementing while planning” nature of the larger DPPI-IFA effort, information regarding funding, timelines, and intervention guidance was often slow to get to the local partners. This was even more challenging given the tight timeline for implementation. Often, during the planning phase, information was needed quickly (e.g., recommended screening process, curriculum guidance) but partners had to wait for guidance and, in some cases, never received the information or received conflicting information from one point to the other (e.g., the need to use the DPP curriculum).

Clarification of Roles. Although the DPCP and DAI had a strong and well-established partnership, there were some challenges surrounding clarification of the role DPCP wanted DAI to play. Because of its long history in this area, DAI indicated that it is accustomed to receiving funding for an intervention and then moving forward with it somewhat independently. However, in this case, DAI felt that the partnership would have benefited from a more structured line of communication with the DPCP and noted that DPCP was not always able to give clear direction on what needed to be done. This is related to the frustration felt with the timeliness and consistency of the information received. There was a sense that some of this could have been helped if more well-defined roles had been established up front.

Budget. Although DAI received \$40,000 in funding for the intervention, it was clear that implementation of this intervention required DAI to use significantly more personnel and financial resources than was covered by DPCP funding. For example, DAI had originally budgeted for one person to be at Lightolier for the awareness phase but had many more people there every day for the 3 weeks of the campaign. Unfortunately, it was very difficult to quantify the in-kind contributions because they were not tracked throughout the intervention and were described as being quite extensive. Because DAI funds were diverted to this intervention, they had fewer resources to apply toward other projects and initiatives to which they were committed.

Reaching Second-Shift Employees. More specific to the implementation of the intervention was the challenge of reaching second-shift employees at Lightolier. Many efforts were made to try to schedule time for the intervention that would work for all staff (exempt, first-shift, and second-shift); however, only one or possibly two second-shift employees became involved in the intervention. There was the sense that if the intervention had been conducted during the first-shift lunch period (rather than after the shift was over), they would have reached more second-shift employees.

Communication with and Involvement of Local Health Care Providers. Employees found to be at risk for prediabetes based on their initial screening test were supposed to be referred to a health care provider for a diagnostic test (OGTT or similar). Although letters were sent directly to providers and also given to employees to give to their providers, only one person was given a diagnostic test by their provider. Anecdotally, the providers accepted the results of the worksite screening as diagnostic for prediabetes.

F.7 Lessons Learned

DPCP staff and partners described several key lessons learned as a result of this work:

- Identify and work with a strong community-based partner who is familiar with the community you wish to reach. Your key partner should know who the key stakeholders are in the community; what types of resources are available to residents; and the related gaps, community needs, and priorities.
- Take your time when planning, and, if possible, allow time to conduct a community assessment of your target community.
- Know the population you wish to intervene with, and adapt your approach and intervention to that population.
- Be prepared to work with your partners to provide support for data collection and evaluation. Do not assume they know why data collection is important or how to accurately collect data. Be prepared to offer hands-on assistance with development and utilization of data collection tools and translation and utilization of evaluation data.
- Do not underestimate the importance of an education or awareness component to this type of intervention. There is the sense that although this piece of the intervention was labor and resource intensive, it was absolutely necessary to build the trust of the worksite employees.
- If possible, provide opportunities for one-on-one or small group peer counseling on site.
- Where possible, utilize staff who are ethnically similar to the target group to help establish a strong and trusting relationship.
- An educational intervention for referral physicians may be beneficial.
- When this type of program is offered at a worksite, it is challenging to limit participation to only those with diagnosed prediabetes, because others will be interested in receiving

this type of wellness information. Be prepared to include all interested employees or have other resources available to this group.

F.8 Future Work in Diabetes Primary Prevention and Sustainability of Current Interventions

Although there is the desire to continue this intervention (by both the partners involved with implementation and the participants at the worksite), this has yet to be done, primarily because of uncertainty about available funding. Lightolier has initiated a Weight Watchers at Work program to keep staff motivated, established a Wellness Task Force, and is exploring another grant with Brown University. Both DAI and DPCP staff discussed the desire to continue working with Lightolier and other employers, but without funding it appears that this may be unlikely. At the time of the interview, DAI was still waiting to hear whether they would receive funding to continue working with Lightolier, and DPCP was still waiting to hear about available carryover funds. One respondent indicated that they realize sustainability should have been discussed early on in the development process, but it was overlooked because they were focused on getting it started due to the tight timeline.

Diabetes primary prevention is an area that all partners found to be central to the fight against diabetes. However, it is clear that both state and local partners are closely bound and limited by what they receive funding to do. Therefore, unless prevention is identified as a priority of CDC and other funding agencies and funding is provided to work in this area, it is unclear whether states will incorporate these types of activities into their standard approach to addressing the burden of diabetes both statewide and locally.

APPENDIX G: SITE-SPECIFIC SUMMARY: MICHIGAN

From July through September 2007, five 2-day site visits were conducted to the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA) states (i.e., California, Massachusetts, Michigan, Minnesota, and Washington). A range of 6 to 13 participants were interviewed in each state, for a total of 57 persons in 29 interviews. This included 14 Diabetes Prevention and Control Program (DPCP) staff, 6 other state health department staff, and 37 partners. This appendix summarizes DPPI activities in Michigan.

G.1 DPCP Infrastructure

G.1.1 Staffing

The Michigan DPCP is located within the Michigan Department of Community Health. DPCP is involved in one of the three DPPI focus areas: the IFA. *Exhibit G-1* outlines the key DPCP staff involved in implementing DPPI-IFA activities.

Exhibit G-1. Michigan DPCP Staff Involved with the DPPI-IFA

Title	Role	Time on DPPI-IFA (%)	Activities for DPPI-IFA
Prevention Coordinator	Leads intervention focus area work in Michigan	65%	<ul style="list-style-type: none"> • Primary point of contact for Intervention Focus Area work with other funded states • Identifies key partners and coordinates activities taking place locally
Manager	Coordinates all aspects of DPCP activities	10%	<ul style="list-style-type: none"> • Participates in meetings and planning of DPPI-IFA activities
Statistician	Designs and implements evaluation for DPCP	10%	<ul style="list-style-type: none"> • Coordinates with WISEWOMAN state staff to revise data collection forms • Conducts data analysis
Epidemiologist	Leads epidemiology work for DPCP	10%	<ul style="list-style-type: none"> • Designed evaluation plan for the WISEWOMAN intervention

Note: DPCP = Diabetes Prevention and Control Program; DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area; WISEWOMAN = Well-Integrated Screening and Evaluation for Women Across the Nation

G.1.2 Funding

The DPCP is funded primarily by the Centers for Disease Control and Prevention's (CDC's) Division of Diabetes Translation (DDT) program funds, as well as state funds. The DPCP was

funded by the DDT for DPPI-IFA activities from September 2005 through the current grant (ending March 2008), for a total of \$359,439 (\$119,813 each year).

Exhibit G-2 details budget and in-kind information for the overall Michigan initiative. It is not possible to break down costs by intervention, because DPCP staff were very closely involved in all three interventions. In-kind estimates were developed by the DPCP with input from partners; details on in-kinds are provided for Phase 3 only. For Phases 1 and 2, only the total CDC funding and the amount provided to partners is shown.

Exhibit G-2. DPPI-IFA Interventions Budget: Michigan

Phase	Total	Staff	DPCP Travel	Supplies/ Other	Funds to Partner/ Cost of Intervention	Notes
Phase 1 (05–06)						
CDC funds	\$119,813					
DPCP funds/ in-kinds					\$25,000	To Lenawee County HD
Partner in-kinds						
Phase 2 (06–07)						
CDC funds	\$119,813				\$6,538 \$53,500	To NMRDI To Lenawee County HD
DPCP funds/ in-kinds						
Partner in-kinds						
Phase 3 (07–08)						
CDC funds	\$119,813	\$104,769	\$8,082	\$8,664	\$20,000	To Lenawee County County HD ^a
DPCP funds/ in-kinds		\$5,250				
Partner in-kinds		\$600 WIC \$600 genomics \$1200 WISEWOMAN \$3600 TIPDON \$16,080 NMRDI		\$500 genomics \$500 NMRDI \$1000 TIPDON		

Note: CDC = Centers for Disease Control and Prevention; DPCP = Diabetes Prevention and Control Program; HD = Health Department; NMRDI = Northern Michigan Regional Diabetes Initiative; TIPDON = Northern Michigan Diabetes Outreach Network; WIC = Women, Infants, and Children; WISEWOMAN = Well-Integrated Screening and Evaluation for Women Across the Nation

^a Individual items may not sum to the total listed because intervention funds to partners may have included carryover funds from the prior year.

The total of in-kind contributions was \$31,330 in Phase 3, which equals nearly one-quarter of the CDC budget. Of the federal amount, most of the funds were used for salary support and travel (for face-to-face meetings). Each year, an award is made to the local health department to cover staff time and supplies. However, the actual cost to add glucose to the existing screening worked out to be much smaller than expected, at 86 cents per person.

G.1.3 Previous Work in Diabetes Primary Prevention

The Michigan DPCP was previously funded by the DDT to develop a plan for diabetes primary prevention. The Michigan Action Plan for Diabetes Primary Prevention was cited by state staff and at least one partner as facilitating the development of interventions for the DPPI-IFA. Beyond the planning grant, DPCP had not conducted any additional work in diabetes primary prevention prior to the DPPI-IFA.

In terms of the DPPI-IFA partners within the state health department, the Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) program had not conducted previous activities in diabetes primary prevention. WISEWOMAN planned to start diabetes screening at some point, recognizing that a handful of other WISEWOMAN states had already implemented diabetes screening. However, prediabetes screening had not been a part of their planned intervention. The Women, Infants, and Children (WIC) program conducted trainings for WIC staff at statewide meetings on the metabolic syndrome, children at risk for type 2 diabetes, and diabetes treatment. At WIC visits, overweight children and their parents are counseled, those at risk of becoming overweight are identified, and all are provided guidance for healthy eating and increasing physical activity. WIC does not perform screening blood tests and did not have a standard nutrition care plan in place at the time of the intervention.

Several of the local or regional health department partners had done work in prediabetes. The Northern Michigan Diabetes Outreach Network (known as TIPDON, because it serves the “tip” of the state) had made presentations on prediabetes to the public and providers, and the hospital that is part of the Northern Michigan Regional Diabetes Initiative (NMRDI) offers a prediabetes education class.

Staff at the local health department that served as the pilot for the DPPI-IFA/WISEWOMAN intervention had been involved in a DPCP/University of Michigan partnership in diabetes education, but they had not conducted prior work in diabetes primary prevention.

G.2 Description of Key Partners and Description of Interventions

The Michigan diabetes primary prevention initiative encompassed three interventions: (1) implementing a training for WIC providers attending the WIC statewide conference on gestational diabetes, family history, and risk for developing diabetes; and developing and disseminating a nutrition care plan for WIC clients with gestational diabetes; (2)

implementing a pilot diabetes and prediabetes screening program for WISEWOMAN clients in one local health department; and (3) partnering with the NMRDI, a regional health care system/health plan partnership, to include prediabetes screening and treatment in an ongoing diabetes control initiative.

Two of these initiatives were planned by the DPCP. Interventions were chosen based on (1) guidance from the Michigan Action Plan for Diabetes Primary Prevention, (2) opportunities offered by existing partners and networks, (3) feasibility in terms of what could be accomplished in the time frame of the DPPI-IFA, and (4) the Common Measures. State staff reported that the Common Measures indicated that a clinical/individual-level intervention was required (although, in retrospect, they reflect that they may have otherwise started with a policy or physician-level intervention first). The third component of DPCP's work for the DPPI-IFA, the NMRDI, was being planned and implemented prior to DPCP involvement and is an independent initiative, but the DPCP and TIPDON did help guide the incorporation of prediabetes components into the plan.

To recruit partners, state staff described a process of investigating opportunities through conversations with potential partners. Rather than starting something new, the DPCP focused on increasing services for persons already enrolled in other health department programs. They sought opportunities where there was existing access to high-risk populations and looked for programs that had the potential to reach a statewide population. This practical approach was consistent with a state health department culture that values integration and is supported by internal management that encourages partnering with other health department programs.

G.2.1 WIC

G.2.1.1 Description of Partnership

The Michigan state WIC program is a federally funded nutrition program that serves low- and moderate-income pregnant, breastfeeding, and nonlactating postpartum women, infants, and children up to age 5 who have a nutrition-related health problem, providing supplemental food, nutrition education, and referrals to health care. The Michigan WIC program encompasses 49 agencies and 250 clinics, in addition to its statewide staff. The primary staff person from WIC was a nurse consultant; additional support on this initiative came from an educator in the genomics unit and a diabetes educator from one of the regional Diabetes Outreach Networks (DONs).

Recruitment of Partners. The DPCP Prevention Coordinator made initial contact with a WIC nurse consultant. The importance of preexisting networks was clear: the Prevention Coordinator had a personal history of working in WIC at local and state levels and knew the WIC nurse consultant; and the WIC nurse consultant, who was the DPCP's main contact, is

also a Certified Diabetes Educator. The DPCP Prevention Coordinator then reached out to recruit the DON diabetes educator and the genomics staff person who had already been involved in developing educational modules for WIC.

Nature of the Partnership. The partnership was described as very balanced in terms of shared decision making. The DPCP Prevention Coordinator was very involved with planning and implementing the WIC intervention.

Reasons Why Partners Became Involved. WIC staff talked about how they receive many requests to work with their clients. They chose this diabetes initiative because it is consistent with their focus and priorities, and they saw a clear connection between the programs.

Communication Strategies Used between DPCP and Partners. There was no formal communication plan, but communication was very frequent via e-mail and phone.

Technical Assistance from the DPCP to Local Partners or among Partners. Partners did not describe the need for intensive technical assistance, perhaps because the DPCP Prevention Coordinator was herself very active in developing the intervention. The expertise of the DPCP was described as being very important to the WIC initiative.

G.2.1.2 Description of Interventions

The intervention consisted of developing and implementing a workshop at a statewide meeting for WIC staff. The stated goal was to improve nutritional counseling provided for women with current or previous gestational diabetes. Approximately 150 participants attended the breakout session (out of about 650 persons at the meeting and out of an unknown number of WIC staff statewide eligible to attend the meeting). The nutrition care plan developed for the workshop was distributed statewide, even to people not attending the workshop, with plans to be included in the WIC nutrition care plan manual. In addition, a more detailed assessment and intervention worksheet for WIC providers working with persons with gestational diabetes was developed and distributed, as well as a resource list of all hospitals with programs on gestational diabetes paid for by Medicaid.

Population at Risk. Because of the income criteria for the program and the ethnic diversity of enrollees, the WIC population was felt to be at high risk for prediabetes and diabetes.

How Interventions Were Chosen and Their Evidence Base. The DPCP Prevention Coordinator and the WIC nurse consultant brainstormed a list of ideas for partnership and decided the timing was best to hold a training session at an upcoming WIC statewide meeting. The diabetes educator and genomics staff were brought in as speakers.

G.2.2 WISEWOMAN

G.2.2.1 Description of Partnership

In Michigan, CDC-funded National Breast and Cervical Cancer Early Detection Program (NBCCEDP) breast and cervical screening takes place in 20 local health departments covering 83 counties. The WISEWOMAN program, which is a CDC-funded cardiovascular risk factor screening and intervention program for NBCCEDP enrollees, takes place in a subset of those settings, specifically in nine local health departments covering 28 counties. In addition to the state program, a single local health department participating in WISEWOMAN, the Lenawee County Health Department, was a key partner for this intervention. Two key staff from the state WISEWOMAN program (a program staff person and the Program Coordinator/Data Manager), as well as the diabetes epidemiologist and the diabetes evaluator, worked with the Prevention Coordinator on this initiative.

Recruitment of Partners. To initiate this effort, the Prevention Coordinator reached out to recruit the state-level WISEWOMAN program and then, with guidance from WISEWOMAN, recruited the local health department to participate. Again, the importance of preexisting networks and the personal work histories of key staff were clear from the descriptions of how the partners were recruited. The WISEWOMAN local pilot coordinator had extensive experience in diabetes education and was known to the DPCP.

Reasons Why Partners Became Involved. Timing was critical for the WISEWOMAN initiative; initiating diabetes screening was something the program had long considered and something they anticipate may soon be required by CDC for their program. Thus, the suggestion from the DPCP to conduct prediabetes screening as well as diabetes screening was timely. In addition, respondents from the WISEWOMAN program reported that they view the DPCP as the experts in diabetes, and they wanted to incorporate that expertise into their program.

Nature of the Partnership. The partnership was described as balanced in terms of shared decision making. The DPCP Prevention Coordinator was very involved with planning and implementation of the WISEWOMAN intervention; however, close coordination with WISEWOMAN staff was necessary to ensure that the developed initiative was designed within any constraints of the WISEWOMAN program.

Communication Strategies Used between DPCP and Partners. For the WISEWOMAN initiative, communication was frequent and regular. Monthly calls were supplemented with quarterly face-to-face meetings, which involved local, DPCP, and WISEWOMAN staff. This frequent communication was especially appreciated by the local health department staff.

Technical Assistance from the DPCP to Local Partners or among Partners. The DPCP Prevention Coordinator was herself very active in development of the interventions and led

the routine planning meetings. Perhaps because of this, the partners did not describe any technical assistance they received per se. The DPCP was described as the expert in diabetes, which was very valued by the WISEWOMAN partners.

G.2.2.2 Description of Interventions

The WISEWOMAN initiative consisted of implementing a 1-year pilot intervention of diabetes and prediabetes screening in an existing WISEWOMAN program. A single local health department, Lenawee County Health Department, that was known to state staff as a well-functioning program and that also had a program pilot coordinator who was a diabetes educator, was recruited by WISEWOMAN and DPCP staff. A 1-year planning phase (2005–2006) resulted in a pilot plan that included diabetes and prediabetes screening. Protocols were revised in summer 2007. Screenings in the local health department have been underway since November 2006.

As part of a comprehensive cardiovascular disease (CVD) risk factor evaluation, fasting fingerstick glucose tests are done. As part of the pilot, the DPCP paid the local health department directly to reimburse for the additional cost of the glucose test. If a result is ≥ 100 mg/dL, then a patient is referred for a diagnostic exam with either the patient's own provider or with the Lenawee Community Action Agency, which operates a clinic for low-income persons in the county and which agreed to see persons who do not have a regular provider. A letter is sent to the provider with the results and states that a second, diagnostic, test is required. In this pilot, however, WISEWOMAN cannot pay for the diagnostic visit unless the participant has another cardiovascular risk factor, in which case the program will pay for a visit to evaluate all the risk factors. In addition to diagnostic visits, if the result is ≥ 375 mg/dL, then the participant is eligible for case management by the WISEWOMAN coordinator (paid for by WISEWOMAN funds).

For the intervention, persons with a fasting fingerstick value of > 100 mg/dL were eligible for six lifestyle counseling sessions, the first of which was one-on-one and five additional visits, which could be either individual or group sessions. The six visits are standard for WISEWOMAN participants. Grocery tours and cooking demonstrations were also a part of the intervention. It was reported that these sessions were tailored slightly for prediabetes, and Diabetes Primary Prevention (DPP) and American Diabetes Association (ADA) curricula were included. Persons with elevated fasting fingersticks in the prediabetes range were also given a 4-month pass to one of two local women's gyms (Curves or Lifestyles); a fixed number of these passes were purchased by the program at a discount.

An additional component of the intervention was to educate providers that are potential referral sources for WISEWOMAN participants. ADA guidelines for prediabetes were disseminated to approximately 60 providers.

Population at Risk. No specific strategies were used to target participants within the WISEWOMAN population; overall, WISEWOMAN participants were felt to be at high risk. Criteria for enrollment in WISEWOMAN are as follows: a woman must be a participant in the breast and cervical screening program, be between the ages of 40 and 64, earn less than 250% of the federal poverty level, and be under- or uninsured. State staff estimated that 40% of WISEWOMAN participants would have prediabetes. In addition, the particular population in the local health department selected for the pilot had a high proportion of Hispanic participants. A focus group was conducted in Spanish to gain knowledge on the most appropriate and useful materials. Separate classes were held in Spanish, focusing on Latino customs (i.e., a grocery tour was done looking at specific foods, and a cooking demonstration was done with Latino-specific foods).

How Interventions Were Chosen and Their Evidence Base. Few decisions had to be made in terms of how to conduct the screening, because WISEWOMAN participants were already doing a fasting fingerstick (for cholesterol); therefore, a fasting capillary glucose was added to the protocol. Although the paper risk assessment used ADA criteria, all WISEWOMAN participants were screened regardless of results of the assessment, which was the decision of state WISEWOMAN staff. Venous blood draws or OGTT were not considered; instead, the decision was made to refer to a provider as part of a diagnostic visit (this fits the existing algorithms of the WISEWOMAN program, which normally screens for CVD risk factors and then refers to providers for the “diagnostic” visit and treatment). The protocol also calls for yearly glucose checks, again a logistical consideration. The lifestyle counseling sessions were adapted for prediabetes, and DPP and ADA curricula were used. State and local staff conducted a focus group of WISEWOMAN participants to find out what treatment options would be desirable and, based on the results, they selected free passes to local gyms and Weight Watchers as additional incentives.

Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base. The program developed a manual detailing the screening algorithm. A fasting capillary glucose is done along with blood pressure and cholesterol screening. A referral is made to a physician for a diagnostic visit for a value ≥ 100 mg/dL. Case management (i.e., follow-up and tracking by the WISEWOMAN pilot coordinator to identify barriers to care) is done for values > 375 mg/dL. Participants are tracked by the WISEWOMAN pilot coordinator. Although the intervention is underway, the diagnostic status of persons who screened high is not yet known. The WISEWOMAN pilot coordinator feels that it will be easy to get follow-up data from the clinic because the clinic is the main source of referral; she also plans to follow up on those persons referred to private practice. Anecdotally, all WISEWOMAN participants were able to be referred to primary care for a diagnostic visit.

Systems for Tracking and Follow-Up of Participants. The WISEWOMAN coordinator kept paper records of persons with a high fingerstick result. Persons were then contacted

via phone and letter according to a protocol; if no response was received from the patient, then the file was closed. The WISEWOMAN pilot coordinator did not have comprehensive feedback from the physicians at the time of the site visit because patients are bringing reports of diagnoses from their providers. However, staff reported that three participants have been diagnosed by their providers with type 2 diabetes and six were diagnosed with prediabetes (from OGTT tests).

Data Systems for Evaluation. Data on the risk assessment and screening results are entered by the WISEWOMAN state staff into the Microsoft Access–based WISEWOMAN database and analyzed by the DPCP evaluator. The database has been updated to include diabetes screening fields, but current reports only have results of the initial screening because follow-up data have not been collected or reported yet by the local health department. Additionally, the database has not yet been updated to include fields for intervention or treatment variables.

G.2.3 Northern Michigan Regional Diabetes Initiative

G.2.3.1 Description of Partnership

The NMRDI is a regional (11-county) diabetes primary prevention and control initiative led by the Munson Healthcare hospital system, which covers 24 counties and includes 350 physicians, and by Priority Health, a health care plan serving members in 48 Michigan counties. A Steering Committee and three workgroups (Prevention and Education, Public Awareness, and Treatment) guide the development of interventions and oversee the initiative; in addition, larger stakeholder meetings are held to gain wide input into the development.

Recruitment of Partners. The DPCP became involved when its regional network office, TIPDON, was invited to participate in the planning process for this work. Subsequently, TIPDON staff have become very involved, serving on the Steering Committee and chairing the Prevention and Education workgroup. TIPDON also has led development of the Physician Packet to be distributed to providers, which includes screening and tracking forms for both diabetes and prediabetes patients. DPCP staff members were subsequently introduced to the NMRDI members at a stakeholder meeting, and the DPCP has supported the NMRDI by hiring a consultant to facilitate development of the 1-year and 10-year plans, funding replication of materials for the Physician Packets, and providing epidemiology consultation for the telephone survey. The DPCP knew it wanted to work with a health system based on its Prevention Action Plan and took the opportunity to fold its involvement with NMRDI into its overall plan for the DPPI-IFA.

Nature of the Partnership. In the context of the NMRDI, the DPCP has played a supportive role by providing funds for the hiring of a planning consultant, the reproduction of materials, and TIPDON staff time.

Reasons Why Partners Became Involved. TIPDON was recruited by the NMRDI because it was viewed as the expert in diabetes and because of its extensive work in the region; TIPDON was described as having on-the-ground knowledge of diabetes-related issues for the area. Because TIPDON is funded by the DPCP, this led to the DPCP's involvement and support of NMRDI.

Communication Strategies Used between DPCP and Partners. No specific communication strategy was developed, although, because TIPDON staff have served as leads for one of the NMRDI workgroups, communication between TIPDON and the NMRDI has been frequent.

Technical Assistance from the DPCP to Local Partners or among Partners. The expertise of TIPDON staff, but not DPCP staff, has been utilized extensively in the NMRDI in developing materials for the physician intervention.

G.2.3.2 Description of Interventions

At the core of this intervention is the development of 1- and 10-year plans that describe a comprehensive strategy to (1) educate providers (for example, through CME talks and in-person visits to clinics), (2) improve data systems (by linking hospital data systems to clinics) to allow for improved information flow and to allow for better data collection for the initiative, (3) develop an understanding of awareness and knowledge about diabetes through a telephone household-level survey, and (4) increase the number of persons in the region who are trained in and can provide a specific course in self-management for persons with chronic disease (the PATH program). The NMRDI is still very early in its work, the plans having recently been completed, and the interventions are still being developed.

With respect to prediabetes, the main goals of the initiative are to educate providers about screening, increase screening, and encourage proper coding so that the information systems can capture data on prediabetes in this population. The plan is also to have a compiled list of community resources for physicians to refer patients that they diagnose as having prediabetes. Another element of diabetes primary prevention was added—an evening CME talk for providers, which included information on diabetes primary prevention.

Population at Risk. Although the NMRDI region was not “targeted” by the DPCP per se, the area reportedly does represent a high-risk population based on age and overweight status and also includes high-risk ethnic populations of migrant farm workers and Native Americans.

How Interventions Were Chosen and Their Evidence Base. A steering committee and three workgroups (Prevention and Education, Public Awareness, and Treatment) guide the development of interventions and oversee the initiative. According to the NMRDI representatives, diabetes primary prevention was on the table as a topic of interest, but TIPDON and DPCP helped them to focus their goals. The Action Plan for Diabetes Primary Prevention was distributed to stakeholders at the first meeting, and through leadership of one of the workgroups, TIPDON staff members were able to add screening and tracking forms for prediabetes into the materials for providers.

Algorithms and Protocols Used for Screening and Treatment and Their Evidence Base. The NMRDI did not conduct screening; however, they did develop the Prediabetes and Diabetes Risk Screening Tool to be distributed to providers. This tool reflects ADA recommendations.

G.3 Results

G.3.1 Community and/or Organizational Level

Several outcomes were described by state staff and partners as notable, including new relationships among organizations.

WIC. A partnership between WIC and the DPCP (and genomics staff) has developed that has the potential for further initiatives. The prediabetes care plan is now formally a part of the WIC intervention and is included in the program's manual. In terms of the WIC workshop, there was a written evaluation by participants (by report, the presentation was well reviewed), and anecdotal feedback from the materials was distributed. No reports were available for review.

WISEWOMAN. Most importantly, diabetes and prediabetes screening is now a part of the WISEWOMAN protocol for all Michigan sites. WISEWOMAN funds will cover the costs of screening and of the diagnostic visits for those who screen in the prediabetes or diabetes range and will cover the lifestyle counseling sessions. Also, a strong relationship between WISEWOMAN and the DPCP was established through this partnership and has continued, as evidenced by the Prevention Coordinator's participation in the planning and rollout of diabetes and prediabetes screening for all WISEWOMAN sites. Anecdotally, Lenawee staff also reported that providers are performing the OGTT, perhaps reflecting improved knowledge and practice in prediabetes, and providers are referring patients to the program.

NMRDI. Although the NMRDI is very early in its work, the strength of partnerships overall, the high attendance at stakeholder meetings, and the existence of the 1- and 10-year plans for the NMRDI were all pointed to as short-term successes of the initiative. The high regard

of TIPDON staff by the NMRDI partners is also a positive outcome from the perspective of the DPCP.

G.3.2 Individual Level

Exhibit G-3 presents results from the WISEWOMAN screening intervention.

Exhibit G-3. Results: Individual Level (Michigan WISEWOMAN)

Intervention Phase	Measure	n	Common Measure or Other	Notes/Definitions
Screening	Number of participants in the target audience	251	O	WISEWOMAN participants without known diabetes as of August 2007
	Number reached through awareness activities		O	
	Number recruited for screening	136 (54%)	O	
	Number at high risk	34 (25%)	C	Fasting capillary ≥ 100
	Number who followed up for screening		C	Results not yet available
	Number for whom results are available		O	Results not yet available
	Number with prediabetes		C	Results not yet available
	Number with diabetes Number with normal results			

Note: WISEWOMAN = Well-Integrated Screening and Evaluation for Women Across the Nation

No data are yet available at the state level on the number of participants who followed up with physicians for diagnosis, enrolled in the counseling intervention, or started a gym membership; likewise, no data are available on the outcomes of the interventions. Anecdotally, uptake of gym memberships has not been as high as expected. The program has received information from the gyms that enrolled participants, including number of times visiting the gym and weight data, but this information has not yet been entered or analyzed.

G.4 Tools Used or Developed by the State

Resources mentioned by state staff and partners included ADA recommendations; NDEP materials; the logic models, resource lists, and other Phase 1 documents developed by the DPPI-IFA; and materials from ADA’s 5th International Workshop—Conference on Gestational Diabetes (2005). State staff were familiar with, but did not use, the two models they were

encouraged to incorporate into the development of programs (the Chronic Care Model and the Improvement Model).

Although not suggested by staff or partners, many tools or resources developed by the Michigan initiatives were identified by RTI as potentially useful references for other programs. These are catalogued in Section 2.7.

G.5 Facilitators to Success

In the interviews with state staff and partners, many success factors were identified. Success factors at the DPCP level include

- a state action plan to guide intervention selection;
- upper-management support in terms of partnering within the health department;
- preexisting relationships and networks, particularly among state and local staff who had worked together or had worked in other offices;
- the presence of regional networks, viewed as on-the-ground, local diabetes experts; and
- maintenance and strengthening of partnerships through structured and frequent communication and through national recognition of partners.

For the WIC initiative, an additional success factor was that

- partners had worked together before and knew each other's programs.

For the WISEWOMAN initiative, additional success factors included

- timing and opportunities (WISEWOMAN happened to be ready to initiate diabetes screening) and
- the fact that data collection systems were already in place and staff needed only to update the data set with Common Measure elements.

For the NMRDI initiative, additional success factors included

- the existence of the TIPDON strategic plan and
- the presence of a diabetes champion.

G.6 Challenges

Most state staff and partners described challenges common to many public health interventions, including the challenges of recruiting a pilot site and working with hard-to-reach populations. The DPCP also spoke about the challenge of partners viewing the organization as the "government" and about being perceived as out of touch with local situations or situations relevant to local initiatives. WIC partners described competing

priorities and the pressure from having multiple potential partners wanting access to their population.

In terms of challenges specific to the DPPI-IFA, WISEWOMAN staff described the lack of resources to guarantee OGTTs or diagnostic referral visits; the time delay and work involved in getting lab procedures approved prior to initiating the testing; and obtaining physician buy-in for OGTT, although they do not have data on this yet. Also, staff identified the lack of resources in the community for physical activity and nutrition as a challenge, as well as the effort necessary to obtain follow-up data on participants.

NMRDI members described barriers specific to a diabetes primary prevention initiative, including barriers to data collection (i.e., physicians not using prediabetes codes), barriers to diagnosis (e.g., the lab not reporting a fasting of 100 to 110 as abnormal), and varying opinions among physicians about the efficacy of screening and treatment of prediabetes.

G.7 Lessons Learned

State staff shared their assessment that both individual-/clinical- and policy-/system-level interventions are needed but that these interventions would come at a higher price. In retrospect, rather than jumping in to do an intervention, respondents indicated that it would have been better to collect and examine surveillance data first to determine the areas of the state and/or populations with the greatest need. Subsequently, they would work to improve awareness of providers and consumers, as well as policy makers. They feel they are “working in a very small corner,” of which legislators are not aware. They also noted the need to partner with a CVD/obesity program at both the federal and state levels.

Lessons learned, in particular with the WISEWOMAN pilot, were that this was a natural fit, given that diabetes is a major risk factor for CVD and given the overlap in interventions for both conditions. The prolonged planning period and 1-year pilot were cited as being of great benefit now that the program is going to be institutionalized.

G.8 Future Work in Diabetes Primary Prevention and Sustainability of Current Interventions

The state DPCP plans to keep one full-time staff member in diabetes primary prevention, although this will require continued CDC support. DPCP staff expressed a desire to work at policy and health systems levels and to conduct work to improve awareness among patients and providers of prediabetes.

In terms of sustainability of individual interventions, WIC (and partners) have already developed Web-based study modules on diabetes and prediabetes for WIC providers. There are no immediate next steps in place, but WIC intends to develop a plan to institutionalize the training that was provided, develop more learning modules, and consider a program to

encourage screening for prediabetes or diabetes for women in WIC with a history of gestational diabetes. WISEWOMAN is extending its pilot to all nine sites, which will have diabetes and prediabetes screening and lifestyle counseling sessions, although the free gym pass component will end unless further resources are located. The NMRDI work is ongoing and the DPCP plans to continue its support, although there is a potential loss of the regional network offices because of funding cuts.

APPENDIX H: SITE SPECIFIC SUMMARY: MINNESOTA

From July through September 2007, five 2-day site visits were conducted to the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA) states (i.e., California, Massachusetts, Michigan, Minnesota, and Washington). A range of 6 to 13 participants were interviewed in each state, for a total of 57 persons in 29 interviews. This included 14 DPCP staff, 6 other state health department staff, and 37 partners. This appendix describes DPPI-IFA activities in Minnesota.

H.1 DPCP Infrastructure

H.1.1 Staffing

The Minnesota Diabetes Program (MDP) is located within the Minnesota Department of Health (MDH). The MDP is funded by the Centers for Disease Control and Prevention (CDC) and the state of Minnesota. The MDP is involved in all three DPPI Focus Areas: Interventions, Surveillance, and Systems Modeling. ***Exhibit H-1*** outlines the key MDP staff involved in the implementation of DPPI-IFA activities.

H.1.2 Funding

MDP is funded primarily with CDC Division of Diabetes Translation (DDT) program funds. MDP was funded by DDT from September 2005 through the current grant (ending March 2008) for a total of \$452,847 (\$150,949 each year) for the Interventions, Surveillance, and Systems Modeling Focus Areas. IFA received \$136,081 over the entire grant period. MDP receives additional funds as part of their comprehensive DDT grant. ***Exhibit H-2*** presents budget and in-kind information for the Minnesota DPPI-IFA.

H.1.3 Previous Work in Diabetes Primary Prevention

Since 1980, MDH has focused on efforts to reduce the impact of diabetes by assembling experts in the field of diabetes to form the Minnesota Diabetes Steering Committee (MDSC). The collaboration led to the development of the Minnesota Plan to Prevent Disability from Diabetes in 1990. A second statewide plan, *Minnesota Diabetes Plan 2010: Creating a Healthier Future for All People in Minnesota*, was released in 2003. This plan was a grassroots movement that involved the MDSC and more than 300 stakeholders throughout Minnesota. Diabetes primary prevention was incorporated throughout this second *Plan*. In 2003–2004, MDH participated in the Diabetes Prevention Planning Pilot project, funded by the Association of State and Territorial Chronic Disease Directors and a precursor to the DPPI-IFA. Another 50 stakeholders were engaged in face-to-face interviews and focus groups to address diabetes primary prevention and integration across chronic disease areas.

As a result, in November 2006, the MDH released *Challenges and Opportunities for Diabetes Prevention*:

Exhibit H-1. Minnesota DPCP Staff Involved with the DPPI-IFA

Title	Roles/Functions	Time on DPPI-IFA (%)	Activities
Principal State Planner	Phase I–II DPPI-IFA Intervention Coordinator	30% until May 2006	<ul style="list-style-type: none"> Formally served as primary contact for IFA work with other funded states
Diabetes Plan Coordinator	Phase II-III DPPI-IFA Intervention Coordinator	30% on DPPI-IFA administrative duties from June 2006 to present; 50% on intervention duties ^a (core funding)	<ul style="list-style-type: none"> Primary contact for IFA work with other funded states Identifies key partners and coordinates activities
Senior Epidemiologist	DPPI-IFA Principal Investigator, co-Surveillance, Systems Modeling participant	3.5% on DPPI-IFA PI administration (budget); 6.5% on intervention projects (core funding)	<ul style="list-style-type: none"> Participates in meetings and planning of DPPI-IFA activities Links IFA activities with Surveillance and Systems Modeling efforts in Minnesota
MN Diabetes Program Unit Supervisor	DPCP Coordinator	1.7% on DPPI-IFA administration (budget); 5% on intervention projects (core funding)	<ul style="list-style-type: none"> Supervises staff Monitors DPPI-IFA budget and is responsible for budget reporting/communication Participates in report completion, oversees contract processing, participates in the Health Systems and Policy Change and Prevention Awareness Action Groups

Note: DPCP = Diabetes Prevention and Control Program; DPPI = Diabetes Primary Prevention Initiative; IFA = Interventions Focus Area

^a Funded by the core cooperative agreement to the DPCP from CDC.

Listening to Public Health Professionals and Partners in Minnesota, a more in-depth action-oriented plan to address diabetes primary prevention.

H.2 Description of Key Partners and Description of Interventions

The DPPI-IFA provided MDP the opportunity to collaborate with individuals and organizations with which they had established relationships and to establish relationships with new partners. Key partners described below include the MDSC as a whole as well as two subgroups: the Health Systems and Policy Change Action Group and the Prevention Awareness Action Group. In addition to collaborating with MDSC and MDH staff, MDP

reached out to other key partners, such as the Institute for Clinical Systems Improvement (ICSI) and state and local Steps to a Healthier Minnesota communities.

Exhibit H-2. DPPI-IFA Budget: Minnesota

Phase	Totals	Staff and In-Kind Staff	DPCP Travel	Supplies/ Other	Funds to Partners/ Costs of Interventions	Notes
Phase 1 (05–06)						
CDC DPPI-IFA funds	\$49,297	\$32,899	\$5,363	\$3,025		
DPCP funds/ in kinds	\$0					
Partner in kinds						
Phase 2 (06–07)						
CDC DPPI-IFA funds	\$44,631	\$29,484	\$6,405	\$1,490.00		
DPCP funds/ in kinds		\$45,500			\$3,000	Family history ad in Star Tribune
					\$10,000	Produced copies of ECHO DVDs
Partner in kinds	\$0	\$17,176		\$20,000.00		In-kind Steps St. Paul contract with ECHO for television shows (not DPCP funds)
Phase 3 (07–08)						
CDC funds	\$42,153	\$24,176	6,405	\$1,075		\$3,500 budgeted for Expo ad for 2007
DPCP funds/ in kinds		\$45,500			*\$18,624 ^a	Contract with ICSI for focus groups
					*\$18,000 ^a	Contract with ICSI for focus group projects and other projects
					\$10,000 ^a	Contract with David Marerro for DPP Training
Partner in kinds	\$0	\$22,450				

Note: CDC = Centers for Disease Control and Prevention; DPCP = Diabetes Prevention and Control Program; DPP = Diabetes Primary Prevention; DPPI = Diabetes Primary Prevention Initiative; ICSI = Institute for Clinical Systems Improvement

^a Funding to ICSI is carried over from Year 1 to Year 3.

^b The values for the Prevention Awareness Action Group and the Health Systems and Policy Change Action Group, and Steps ECHO and DPP-YMCA project estimates are for the first 5 months only. The rest of the table reflects annual budgets.

The DPPI-IFA key partners and interventions were shaped by the MDP's vision that the following key system-level areas must be addressed to achieve successful and sustained diabetes primary prevention efforts: (a) raise awareness of providers, health systems, and patients/consumers about diabetes risk factors and prediabetes; (b) provide clear guidelines for providers and patients on the identification and management of prediabetes; and (c) ensure that effective lifestyle programs for diabetes primary prevention are convenient, accessible, affordable, and sustainable. The ultimate goal for Minnesota is to establish a diabetes primary prevention system that identifies persons with prediabetes, provides advice and refers them to appropriate programs, and supports persons with prediabetes in actively engaging in sustained behavior change.

H.2.1 The Minnesota Diabetes Steering Committee

H.2.1.1 Description of Partnership

The MDSC is one of the most significant partners for the MDP in implementation of the DPPI-IFA activities. Established in 1981, the MDSC includes a wide variety of organizational partners, including representatives from health systems, government, community organizations, and advocacy groups. Members include the American Diabetes Association (ADA), Indian Health Service, the Medicare Quality Improvement Organization, and the International Diabetes Center among many others. The MDSC plays an important role in planning and guiding primary prevention of diabetes and prediabetes awareness interventions in Minnesota. For this effort, two prevention action groups were developed: the Health Systems and Policy Change Action Group, which focuses on implementing changes in the health care systems and policies, and the Prevention Awareness Action Group, which focuses on increasing awareness about prediabetes. These groups function somewhat independently of one another allowing them to focus on their respective areas of intervention; however, they are supportive of each other and provide feedback as necessary.

H.2.1.2 Description of Intervention: Family History of Diabetes: Are You or Someone in Your Family at Risk for Developing Type 2 Diabetes?

While the two Action Groups were determining the approach they wished to take in their respective focus areas, the MDSC proposed to take immediate action on an issue they felt was of critical importance, addressing the needs of families that include someone diagnosed with or at risk for diabetes. The focus was to target these families and provide them with information and resources to encourage them to develop healthier lifestyles. These efforts led to a key partnership with the Minnesota Department of Health Genomics Coordinator (housed in the Health Promotion and Chronic Disease Division) and two other state leaders in this area.

Of note, Minnesota is one of four states awarded a grant by CDC to look at building capacity in genomics at state health departments and to look at how genomics fits within the public health mission around prevention. They are in the fourth year of a 5-year grant.

The goals of the intervention, “Family History of Diabetes: Are You or Someone in Your Family At Risk for Developing Type 2 Diabetes?,” are to (1) reach people diagnosed with type 2 diabetes and their families in an effort to raise their awareness that family members are susceptible to developing diabetes and (2) educate people that, by modifying their lifestyle, they can prevent complications of the disease or prevent developing type 2 diabetes.

MDP has developed and provided materials around the theme of family history of diabetes. MDP sponsored a reduced rate, half-page *Star Tribune* ad as part of the American Diabetes Association’s (ADA’s) Diabetes Expo promotion. The ad was aimed at families of people with type 2 diabetes and reached more than 300,000 people in the seven county metro area. They produced the ad, displayed materials and posters produced with MDP in-kind graphic support, and used the National Diabetes Education Program (NDEP) materials and graphics as well.

These served as a pilot test to see if health communication messages that MDP developed resonated well with various audiences. After receiving positive feedback from consumers, the message, “Now is the Time To Prevent Diabetes,” and the Family History of Diabetes materials were created to use at events throughout 2006–2007.

Population at Risk. Families of people with type 2 diabetes.

How Interventions Were Chosen and Their Evidence Base. MDSC decided that families can be motivated to adopt healthier lifestyle changes if someone they love has been recently diagnosed with type 2 diabetes.

H.2.2 The Health Systems and Policy Change Action Group and the Institute for Clinical Systems Improvements

H.2.2.1 Description of Partnership

The Health Systems and Policy Change Action Group is partnering with ICSI to integrate prediabetes into diabetes-related clinical health guidelines. MDP and the Health Systems and Policy Change Action Group thought that ICSI would be a good partner given the organization’s national leadership on guideline development. ICSI is an independent, nonprofit organization that collaborates on health care quality improvement efforts of medical groups, hospitals, and health plans that provide health care services to people who live and work in Minnesota, North Dakota, South Dakota, Iowa, and Wisconsin. In Minnesota, 90% of health providers and systems are reached by ICSI-related activities. ICSI is also engaged in initiatives with the major self-insured Minnesota employers. The

majority of its funding comes from the health plans in Minnesota, all of which are nonprofit. ICSI's primary focus is the development of evidence-based documents and support for integrating evidence-based care into practice. ICSI maintains 96 health care guidelines that are on the National Clearinghouse and can be obtained free of charge on the Internet. They are used in Minnesota as well as numerous health agencies and organizations across the country.

ICSI's process for developing health care guidelines involves a thorough literature review and summary of the literature, which is then provided to a multidisciplinary group of key experts in the field for discussion. Additionally, ICSI conducts focus groups with patients and health care providers. They conduct meetings to come to a consensus on the evidence. When there is no evidence, they review regulatory practices and standards in the community. A draft document is sent to all of their members. The workgroup has to address every comment, and revisions are made accordingly. After this review process, the document is sent to the ICSI Steering Committee for final approval. Upon approval from the Committee, ICSI develops a new set of health care guidelines. ICSI then pilots the health care guidelines for the first year and makes revisions accordingly. The health care guidelines are periodically revised based on how often the literature is changing.

Recruitment of Partners. MDP and the Health Systems and Policy Change Action Group identified ICSI as an important partner to address health systems and policy change because of ICSI's relationships with providers, health systems, employers, and insurance plans in Minnesota. MDP contacted ICSI to determine their interest in partnering with them and serving as a contractor to conduct research to explore the barriers regarding health systems and policy changes, and the development of health care guidelines related to prediabetes. Members of the Health Systems and Policy Change Action Group included the Chair of the MDSC; Director of the International Diabetes Center; Director of Diabetes Care at Fairview Health Systems and former president of the American Association of Diabetes Educators; Minnesota State Chronic Disease Epidemiologist; Assistant Director of MDH's Center for Health Promotion; and the MDP Coordinator, Epidemiologist, and Plan Coordinator.

Nature of Partnership. The partnership was described as mutually beneficial. The partners share in the decision-making process. ICSI was described as being very open to listening to ideas presented by the Health Systems and Policy Change Action Group.

Reasons Why Partners Became Involved. ICSI's new strategic plan includes planning to change health systems and look at preventive care. Thus, when they were approached by MDP, they found that the opportunity to focus on prevention was in line with their organizational goals. ICSI indicated that diabetes primary prevention was an area that they have wanted to work in for some time. When they were able to secure some additional

funding through the DPPI-IFA effort, they were able to take action on this issue sooner than planned.

Communication Strategies. The Health Systems and Policy Change Action Group meet as needed. MDP staff facilitate and are involved in these meetings. MDP staff incorporated a number of formal communication strategies to keep ICSI informed about DPPI-IFA activities (including teleconference calls, face-to-face discussion, and e-mails).

Technical Assistance. The technical assistance from the MDP consisted of providing diabetes primary prevention public health expertise, current research findings, and administrative and logistical support (i.e., setting up and scheduling teleconferences). Many of the partners involved are considered leaders in diabetes primary prevention and control in the state of Minnesota.

H.2.2.2 Description of Intervention: Increase Awareness and Ability of Health Systems, Providers, and Patients/Consumers to Address Prediabetes

The goal of this intervention is to develop and implement an intervention to ultimately reduce the number of people who develop diabetes. To meet this goal, the objectives are to increase health systems' awareness and ability to address prediabetes and to increase consumer awareness of who is at risk for diabetes through diabetes primary prevention efforts. The Health Systems and Policy Action Group and ICSI are working together to find ways to change the way prediabetes is addressed in the clinical setting across Minnesota.

The Health Systems and Policy Change Action Group's original recommendation to ICSI was to develop a guideline specific to prediabetes. Although prediabetes has been on ICSI's radar for some time, ICSI explained that they did not perceive prediabetes as a standalone guideline; however, they were willing to implement the Health Systems and Policy Change Action Group recommendations to strengthen the recommendations for blood glucose testing and prediabetes treatment within the context of two existing guidelines: Management of Type 2 Diabetes Guidelines and Prevention Service Guidelines. The Action Group submitted these recommendations to ICSI in December 2006. At the time of the case study data collection, the development process was still underway, and thus the guidelines were not available for review.

In addition, the Action Group set out to work in partnership with ICSI to help them develop new Primary Prevention of Chronic Disease (PPCD) guideline, which would also include prediabetes. ICSI convened a group of statewide experts to begin developing the PPCD guidelines. The MDH State Chronic Disease Epidemiologist was invited to participate and served as a primary link back to the Health Systems and Policy Change Action Group. To further facilitate this work, ICSI was provided DPPI-IFA funding to sponsor focus groups, which included prediabetes but also other chronic diseases as the topics. In addition to supporting the work of the PPCD guideline development group that started in May 2007, as

well as the Diabetes and Prevention Services Guideline work groups who were scheduled to reconvene in fall 2007, the data obtained through the focus groups have helped the MDSC and the MDP better understand the barriers people face in making lifestyle changes.

For this piece of the intervention, ICSI managed and moderated a series of focus groups in April and May 2007 with patients, providers, and employer focus groups. The focus groups were used as research to develop the PPCD guideline. The Health Systems and Policy Change Action Group assisted with development of the moderator's guides. The focus groups were conducted to elicit feedback on the following issues:

- Patients:
 - Understanding of chronic disease (diabetes, cardiovascular disease [CVD], chronic obstructive pulmonary disease [COPD], obesity, hypertension, smoking) risk factors and prevention
 - How and if the presence of risk factors influences changes in lifestyle
 - Perspective of their health care provider's role
 - Barriers to decreasing or preventing risk factors
 - Ideas to support healthy lifestyle
- Providers:
 - Barriers to providing education and support for patients to create healthy lifestyles and decrease risk factors
 - Understanding provider's perspective of barriers and challenges to patients in following health care advice to decrease risk factors
 - Ideas of how health care systems can support healthy lifestyles and decrease patient risk factors
- Employers:
 - Understand the employer's perspective on their role in decreasing risk factors, educating their employees, and creating an environment that supports healthy lifestyles
 - Identify opportunities and challenges for employer groups to offer healthy lifestyle choices to employees for preventing chronic disease

Populations at Risk. The primary consumer of the materials developed through this work will be the health care providers and health care systems in Minnesota. Secondary consumers include health insurers and purchasers of health care insurance. The guidelines will serve as a standardized protocol providers can use when working with their patients on diabetes prevention. This benefit will ultimately trickle down to all people in Minnesota who may be at risk for developing diabetes.

How Interventions Were Chosen and Their Evidence Base. As described above, interventions were determined jointly by the MDP, the MDSC, and ICSI. The original recommendation by the MDP and the MDSC was that prediabetes should have its own clinical guidelines; however, ICSI determined that references to prediabetes should be

strengthened within the context of two existing guidelines. The groups then agreed to work together on development of a third guideline that would incorporate prediabetes in the greater context of chronic disease.

H.2.3 Diabetes Primary Prevention Awareness Action Group of the MDSC

H.2.3.1 Description of Partnership

The Primary Prevention Awareness Action Group (PAAG) has been tasked with increasing awareness of prediabetes and type 2 diabetes primary prevention throughout Minnesota and providing recommendations to MDSC. PAAG has a charter, logic model, and communications and social marketing plan on how they propose to reach consumers and health professionals. The Action Group, guided by MDP, developed these tools to ensure that PAAG had a systematic approach. PAAG will build their plan on the results of the ICSI research and current community projects with DPP with Steps and West Side Clinic (La Clinica) and build on the 2006–2007 MDP family history messages to families of people with type 2 diabetes. At the time of this site visit, this group had made recommendations to the MDSC to identify gaps in prevention in the state, address reimbursement concerns, promote the DPP work with a seminar to health professionals, develop a tool kit for health care providers, and develop community awareness programs. They had formed smaller work groups to address these but had not been able to identify a formal plan of action for the group, in large part because of the somewhat diverse priorities of key team members, the many competing priorities related to this issue, and challenges in narrowing down the focus. In addition, members expressed that lack of any funding limited their abilities to act and so they focused on plans for the state.

H.2.4 Steps to a Healthier Minnesota

H.2.4.1 Description of Partnership

Steps to a Healthier Minnesota: MDP and St. Paul, Rochester, and Willmar cities and the Minneapolis Department of Health and Family Support received funding from Steps to a HealthierUS. They are currently in their fourth year of a 5-year grant. Steps is an initiative of the U.S. Department of Health and Human Services. The objective of Steps is to help Americans live longer, better, and healthier lives by reducing the burden of diabetes, overweight, obesity, and asthma by focusing on physical inactivity, poor nutrition, and tobacco; each are related risk factors.

The state and local Steps program have strong partnerships with key players in the communities. Their goals for diabetes primary prevention are similar to those of the MDP, including using evidence-based, cost-effective interventions and evaluating the interventions to document successes and problems.

H.2.4.2 Description of Interventions

Steps—Emergency and Community Healthy Outreach Programs. The goal of this intervention is to reach low-literacy, non-English speaking populations with messages about diabetes and diabetes primary prevention by working with Emergency Community Health Outreach (ECHO) to provide culturally sensitive public television shows and reproduce these shows on DVDs for community workers, health educators, and individual families to use to increase prevention awareness and diabetes care among individuals and families who are Hispanic, Somali, Hmong, Vietnamese, Khmer, and Laotian.

The Steps to a Healthier St. Paul program identified a need to provide health-related information to non-English speaking residents of St. Paul. To do this, Steps has been working with the ECHO project, which develops and disseminates health and safety programming in a variety of languages through public television. In partnership with the ECHO program, Steps to a Healthier St. Paul and MDP staff produced one show in six different languages, “ECHO on Diabetes,” on the prevention and treatment of diabetes and its risk factors. These programs target the six most common non-English languages in Minnesota. The ECHO programs were paid for by the St. Paul and Minneapolis Steps programs. Steps initiated, funded, and coordinated the project and the MDP staff were involved in planning and writing the scripts used for the shows.

The television program is based on a question-and-answer format where a local bilingual host interviews a public health expert. Shows were recorded in six languages: Somali, Hmong, Khmer, Lao, Spanish, and Vietnamese. Each television show is approximately 20 minutes long and presents important information on diabetes. In addition to live broadcasts on public television, a DVD of the diabetes program combined with previously produced programs on asthma, physical activity, and nutrition was produced in each of the six languages. MDP provided \$9,500 to reformat and make 4,800 copies of the DVD so that they could be distributed to community partners. A discussion guide written and tested in cultural communities by St. Paul Steps accompanies the DVD. The purpose of the guide is to provide organizations that may use these DVDs with some discussion topics that can be used before and after airing the DVDs. Steps is working on a distribution plan to ensure that the DVDs are distributed to the organizations who work most closely with these target groups. Postage costs will be shared between MDP and the state-level Steps program. MDP plans to promote ECHO DVDs nationally as soon as they have the dissemination materials and the Web site is operating.

Population at Risk. Steps—ECHO seeks to provide education to non-English speaking individuals and families who are Hispanic, Somali, Hmong, Vietnamese, Khmer, and Laotian.

How Interventions were Chosen and Their Evidence Base. This intervention was chosen by Steps to a Healthier St. Paul because new immigrants and ethnic communities are experiencing increased rates of diabetes as they enter our culture. Additionally, non-English

speaking populations have been identified as difficult to reach with printed materials or through health educators. Because ECHO is a well-established resource for non-English speaking residents, it was a natural choice for reaching these groups.

Steps-Diabetes Primary Prevention (Steps-DPP) Project. The goal of Steps-DPP is to provide a community-based diabetes primary prevention program for the identification and treatment of those diagnosed with prediabetes. A key goal is to develop the link between health systems and providers, where identification most likely occurs, to community-based lifestyle change programs. Facilitators will be trained by the MDP, and Steps-DPP staff will coordinate program recruitment, awareness campaigns, and implementation.

During the time of data collection for this case study, the Steps-DPP project was still in the planning phase. The Steps-DPP project is based on Steps' existing relationships with YMCAs and other fitness organizations in Steps communities. Steps proposed a community-based, 16-week education intervention using the DPP curriculum. MDP will sponsor trainings for local staff in December 2007 at these organizations so they can lead the education sessions beginning in January 2008. These training costs are estimated at \$10,000. The state Steps program will cover travel and lodging expenses for participants who live outside the metro area.

While also still in the planning stage, the second phase of the program involves partnering with key health care providers and clinics serving high-risk individuals in Steps communities to implement an awareness campaign on prediabetes, the risk factors for prediabetes and diabetes, and lifestyle changes that can help prevent or delay diabetes for people who have prediabetes. The intervention will address several levels of the socioecologic model and has been adapted to include health care communities. The costs for delivering the intervention will be evaluated to help assess cost-effectiveness. Participants' costs are expected to include blood glucose tests and clinic visits to diagnose prediabetes, to be paid for through participant's health plans or Federally Qualified Health Centers (FQHC) funding for diabetes detection. Costs for the DPP classes are expected to be paid for by the participant or scholarships provided by the YMCA or Steps community programs or local foundations. Program development costs, such as training, recruitment materials, and evaluation design, are expected to be provided by MDP and Steps staff support.

Several questions need to be addressed before this intervention can move forward, including (1) who and how to pay for screening of prediabetes patients? and (2) will participants in DPP be asked to pay for classes? There are also issues regarding recruitment and retention. MDP is also uncertain about the commitment of individuals from the clinic or fitness centers to attend a training and lead the classes.

Population at Risk. The pilot intervention is intended to address low-income, English-speaking individuals at risk for developing diabetes and being screened for prediabetes at community clinics. The work with YMCAs will address whether participants are able or willing

to pay for a program or whether YMCA scholarships are needed to enable them to participate.

How Interventions were Chosen and Their Evidence Base. The low-income DPP pilot was developed to be a precursor for more culturally specific programs in the future once the program development details have been resolved, including the level of funding from grants or other sources outside of the MDP that is needed to operate the program. Steps submitted an RFA for a 5-year REACH grant that outlined a sustainable program in specific cultural communities in partnership with MDP staff.

H.3 Results

Overall, MDP and their partners believe that their current activities have been successful in addressing several needs in Minnesota. First, for the MDP and genomics programs, the family history messages resonated well and are being incorporated into MDP's prevention work. Also, the materials MDP developed have been requested by other organizations. Some organizations have asked MDP to adapt the materials for Spanish-speaking individuals. Second, the broad base of partnerships has established a foundation to increase awareness of providers, health systems, and patients. MDP has been part of the ICSI guideline process for chronic disease to the mutual benefit of ICSI and MDP. MDP has brought prevention and public health expertise to ICSI. PAAG is positioned to use their sphere of influence to be able to use the results of the ICSI focus groups and guidelines. Third, the Steps partnerships have allowed MDP to reach into the local public health arena with prevention messages. Finally, for the Steps-ECHO collaboration, the production of the DVDs was considered a key success of this effort.

H.3.1 Community and/or Organizational Level

MDP believes that being a part of this initiative has enabled the team to increase their credibility by being able to state that they are working with national experts and other states.

Diabetes primary prevention was an area that MDP partners have expressed interest in addressing for some time. The DPPI-IFA presented a timely opportunity to build on existing relationships and move discussions about collaboration to action.

MDP and partners who received funding, such as ICSI, believe that having DPPI-IFA funding moved them to take action on diabetes primary prevention sooner and faster than they would have been able to without this additional funding.

MDP, the Health Systems and Policy Change Action Group, and ICSI. The efforts led by MDP and the Health Systems and Policy Change Action Group led to a newly formed partnership with ICSI. Partners we spoke with indicated that they intend to collaborate on future projects.

The partnership led to ICSI taking the recommendations from the Health Systems and Policy Change Action Group to strengthen the reference to prediabetes within the context of two existing guidelines: Management of Type 2 Diabetes Guideline and Preventive Services Guideline. In addition (with MDP funding), ICSI conducted focus groups to aid the development of the new Primary Prevention of Chronic Disease (PPCD) Guideline that will also include prediabetes. Additionally, the MDH State Epidemiologist is participating on the PPCD work group. The guidelines must be approved by ICSI's Steering Committee before they are distributed or pilot tested. The Steering Committee will meet later this year.

Steps-ECHO. The ECHO DVDs were produced and a facilitator's guide is being tested by community workers in the local Steps program. They are currently working on a dissemination plan for the DVDs. MDP plans to promote the DVDs nationally via the World Wide Web.

Steps-DPP. The partnership and long-term vision of reaching low-income and culturally diverse populations shows promise. Training for the DPP facilitators has been scheduled, and plans are underway to develop this program.

H.4 Tools Used or Developed by the States

Resources mentioned as being useful were CDC guidance and the tools developed during Phase 1 of the project (e.g., white papers on screening, logic models, resource lists) and NDEP materials. Resources developed by MDP and partners included logic models, ICSI focus groups, ECHO DVDs, the Family History of Diabetes campaign, and the communication and social marketing plan.

H.5 Facilitators to Success

Major facilitators of success were utilizing strong existing relationships with the MDSC and with organizations that share similar priorities, such as Steps and Genomics; maintaining individual relationships with people in the field; and developing new relationships with key organizations, such as ICSI. These types of relationships allowed MDP to begin discussions on potential ways of partnering before the opportunities were presented. Individuals were also meeting informally and discussing potential collaborations prior to this funding grant.

Availability of funding was also mentioned as a success factor in projects that received funding. Without the funding, MDP staff indicated that they would not have been able to make this type of progress on this issue. It also allowed them to take advantage of related opportunities that presented themselves. For instance, because of DPPI-IFA funding, they were able to partner with Steps on the ECHO project and use those resources to purchase DVDs.

The funding for ICSI focus groups established a reason for working together in planning questions and target audiences and working toward a common goal.

Additional success factors include having champions on the Steering Committee, committed and compassionate staff who were willing to devote their time, and the experts and resources provided by CDC and the DPP.

H.6 Challenges Faced

H.6.1 State Level

Travel. MDP noted that obtaining the necessary state approval for travel to DPPI-IFA meetings has been a challenge. Respondents reported that, because they are a state program, they are not supposed to travel outside of the state, even when the budget for this travel is included in an award. They reported that other programs within MDH are affected by their travel because there is a cap on out-of-state travel for each division, and the DPPI-IFA-related travel required a disproportionate amount of the overall section and division budget, allowing other units and sections to spend less. This would not be a problem if travel outside of Minnesota were paid directly by CDC.

Time. The amount of time it takes to work on the intervention was noted as challenging. For instance, state staff donated a significant amount of time to implement the DPPI-IFA because their time was already largely accounted for by other projects. Because prevention is a new area, there is a learning curve, which required more resources to overcome. For example, staff stated that they believe it is easier to think about secondary and tertiary prevention as opposed to prediabetes because secondary and tertiary prevention are well defined.

Technical Assistance. MDP felt that they needed more direction from CDC at the beginning of the project. However, as they moved further along, they realized that the project was intended to be a collaborative effort and brainstorming and discussing ideas was part of the process. Additionally, it allowed them to increase their knowledge of issues related to prediabetes.

H.6.2 Partner Level

Time. Not having enough time was also noted by the partners because many volunteer their time.

Navigating Partners. Partners reported that it was difficult to narrow their focus, for instance deciding on the level of intervention (e.g., population versus clinical). Minnesota sought to bring together individuals with different specialties, which often led to challenges when trying to obtain consensus. Working through the differences of opinion and perspectives is often time-consuming and requires people to step outside of their area of expertise to explore new ideas.

Preparation Time. A few individuals commented that too much time was spent planning and not enough time was spent implementing something.

Dissemination. Deciding how to disseminate information seems to be a challenge. For instance, after developing ads for the Family History of Diabetes (Are you or someone in your family at risk for developing type 2 diabetes?), they found it challenging to expand the reach of the messages and let others know they could use the messages.

H.7 Lessons Learned

MDP staff and partners described several key lessons learned as a result of this work. The primary advice they would provide to other states focused on the importance of relationships.

Planning

- Be flexible and open to changing strategies if needed.
- Create a network so that people will not feel they are working in isolation.

Partnerships

- Overwhelmingly, partners suggested that the key to success is the strength of the partnerships.
- Find a shared mission or vision, common platform, and values. Then discuss an implementation strategy.
- Be open to taking on new roles and activities.
- Cultivate relationships; do some shared things together.
- Build trust that will lead to more opportunities to do better things.
- Develop a few ideas and then build groups based on the ideas.
- Have a point person, someone with good organizational skills.
- Be open to learning other people's processes, because anytime you work with a group, people may have different methods.

Materials/Resources

- Provide graphics and offer to tailor the graphics for the local communities.

H.8 Future Work in Diabetes Primary Prevention and Sustainability of Current Interventions

There is a desire to continue work in diabetes primary prevention; however, the uncertainty about available funding is an issue. Although prediabetes was an area that many wanted to

explore, it was not until they had DPPI-IFA funding that they could begin to implement activities. For instance, at least 0.4 full-time equivalent (FTE) IFA staff time was supported by the DPPI-IFA, although another 0.75 was pulled in from core CDC resources. Funding provided to ICSI allowed them to conduct the focus groups that are part of the standard process they use in developing guidelines. Funding also made it possible to produce and copy the DVDs for the Steps-ECHO project. Of note, some interventions such as ECHO were designed as a one-time effort. However, increasing the priority of diabetes primary prevention in ICSI care guidelines is deliberately intended to produce long-term effects, effects that can potentially drive health care practice and insurance reimbursement for prediabetes management for Minnesota. Once operational, the MDP and Steps objective for the DPP is to use this experience to build a long-term sustainable DPP programs to complement the ICSI guidelines. Whether or not funding continues, the state and its partners plan to continue to find ways to collaborate on future projects.

APPENDIX I: SITE SPECIFIC SUMMARY: WASHINGTON

From July through September 2007, five 2-day site visits were conducted to the Diabetes Primary Prevention Initiative (DPPI) Interventions Focus Area (IFA) states (i.e., California, Massachusetts, Michigan, Minnesota, and Washington). A range of 6 to 13 participants were interviewed in each state, for a total of 57 persons in 29 interviews. This included 14 DPCP staff, 6 other state health department staff, and 37 partners. This appendix summarizes DPPI activities in Washington.

I.1 DPCP Infrastructure

The Washington Diabetes Prevention and Control Program (DPCP), located within the Division of Community and Family Health, originally applied for DPPI-IFA funding as an opportunity to address diabetes primary prevention. The state had been exploring ways to address primary prevention for several years and was eager to expand their work in diabetes to include prevention. Although several focus areas are part of the DPPI, the Washington DPCP only participated in the IFA.

I.1.1 Staffing

DPPI-IFA activities were led by a DPPI-IFA Manager and supported by two contract managers with oversight from the Director of the Chronic Disease Prevention Unit. Originally, a different staff member served as the DPPI-IFA Manager. She sat on the Executive Committee and was also the lead of the cross-state Intervention Group. Since her departure, a new DPPI-IFA Manager joined the team and participates in the Intervention Group Meetings. The Director of the Chronic Disease Prevention Unit took over the Executive Committee seat. ***Exhibit I-1*** shows the key DPCP staff involved in implementation of DPPI-IFA activities.

I.1.2 Funding

Exhibit I-2 outlines the funding available to the Washington State DPCP for the DPPI-IFA effort. In Phase 2, DPCP received \$76,141 from the Centers for Disease Control and Prevention (CDC) to implement the DPPI-IFA intervention. This amount increased to \$78,425 for Phase 3. Both DPCP staff and the partners involved in the intervention all contributed many hours of overtime work in order to implement the intervention; however, they were unable to calculate the exact amount of this in-kind contribution.

Exhibit I-1. Washington DPCP Staff Involved with the DPPI-IFA

Title	Role/History with DPCP	Time on DPPI-IFA (%)	Activities
DPPI-IFA Manager	Consultant for the Washington Department of Health	10%	<ul style="list-style-type: none"> • Participates in the Intervention Group Meetings • Oversees the DPPI-IFA effort
Contract Manager for REACH DPPI-IFA	Consultant for the Washington Department of Health	4%	<ul style="list-style-type: none"> • Serves as the liaison between REACH agencies and the DPCP
Contract Manager for GCHD DPPI-IFA	Consultant for the Washington Department of Health	4%	<ul style="list-style-type: none"> • Serves as the liaison between GCHD and the DPCP
Director, Chronic Disease Prevention Unit		N/A	<ul style="list-style-type: none"> • Wrote application for initial funding • Participates in the Executive Committee

Note: DPCP = Diabetes Prevention and Control Program; DPPI = Diabetes Primary Prevention Initiative; GCHD = Garfield County Hospital District; IFA = Interventions Focus Area; REACH = Racial and Ethnic Approaches to Community Health

I.1.3 Previous Work in Diabetes Primary Prevention

Prior to the DPPI-IFA funding, Washington State was not involved in prediabetes work. Although they were interested in the topic and had many diabetes-related projects, they had no additional funding for prediabetes. They did not want to redistribute money away from their current diabetes programs to prediabetes programming, so they were unable to initiate efforts focusing on prediabetes until the DPPI-IFA funding became available.

I.2 Description of Key Partners and Description of Interventions

Two key partners are working with the DPCP for the DPPI-IFA: Garfield County Hospital District (GCHD) and the Seattle-King County REACH Coalition (REACH). Three coalition member agencies received funding from REACH to implement a DPPI-IFA intervention: the Center for MultiCultural Health (CMCH), Sea Mar Community Health Centers (SeaMar), and International Community Health Services (ICHS). Sections I.2.1 and I.2.2 describe these partners and their involvement with the DPPI-IFA effort.

The partners were recruited through a request for proposal (RFP) released by the DPCP. When Washington first released the RFP, only GCHD responded. REACH had considered responding to the RFP but determined that there was insufficient time to submit a proposal to the state. GCHD, on the other hand, was able to respond in the time allotted because their proposed intervention was building off an existing program.

Exhibit I-2. DPPI-IFA Budget: Washington

	Total	Staff	DPCP Travel	Supplies/ Other	Funds to Partners/ Costs of Interventions	Notes
Phase 1 (05–06)						
CDC funds	\$68,671	\$7,061	\$10,546	\$15,800	\$33,497 ^a	
DPCP funds/ in kinds	\$12,387 ^b					
Partner in kinds						
Phase 2 (06–07)						
CDC funds	\$76,141	\$12,360 ^b	\$10,649	\$15,216	\$44,524	
DPCP funds/ in kinds						
Partner in kinds						
Phase 3 (07–08)						
CDC funds	\$78,425	0	\$8,479	\$4,621	\$61,900	
DPCP funds/ in kinds		\$7,752				
Partner in kinds	\$20,000					

Note: CDC = Centers for Disease Control and Prevention; DPCP = Diabetes Prevention and Control Program; IFA = Interventions Focus Area

^a This funding went into contracts with the University of Washington for the forming phase.

^b DPCP in-kinds were primarily donated staff time.

When the DPCP received only one response to the RFP, they contacted REACH directly and asked them to submit a proposal. REACH decided to do so, and they received input from the DPCP during the proposal-writing phase.

1.2.1 Garfield County Hospital District

1.2.1.1 Description of Partner

GCHD is located in Pomeroy, Washington, a rural community in the eastern part of Washington State. A hospital district is a community-supported governmental entity that is authorized to provide any service to help people stay healthy—physically, socially, and mentally. Hospital districts are owned and governed by local citizens so they tailor their services to meet the needs of their community. GCHD serves roughly 2,400 people and includes a hospital, long-term care facility, a clinic, and a child care facility.

The DPCP was familiar with GCHD through their joint work on the Washington State Collaborative to Improve Health. GCHD was interested in the DPPI-IFA funding because it

allowed them to expand their work in prevention to include prediabetes. The DPPI-IFA complemented GCHD's existing programs in prevention and allowed them to enhance their efforts to engage their community for health promotion.

Staffing. There are three primary staff members on the DPPI-IFA intervention at GCHD (*Exhibit I-3*). There has been some turnover during the course of the project, and the current DPPI-IFA coordinator only became involved in the effort after implementation of the intervention.

Exhibit I-3. GCHD DPPI-IFA Staff

GCHD Staff	Role
DPPI-IFA Coordinator	<ul style="list-style-type: none">• CEO of GCHD• Facilitates the DPPI-IFA efforts
DPPI-IFA Team Member	<ul style="list-style-type: none">• Licensed practical nurse• Community care coordinator• Conducts health assessments for DPPI-IFA• Conducts recruitment and outreach for DPPI-IFA• Day-to-day leader for DPPI-IFA
DPPI-IFA Team Member	<ul style="list-style-type: none">• Registered dietician• Helps conduct health assessments for DPPI-IFA

Note: DPPI = Diabetes Primary Prevention Initiative; GCHD = Garfield County Health District; IFA = Interventions Focus Area

Communication and Technical Assistance from DPCP. When the DPPI-IFA project began, GCHD conducted conference calls with the DPCP on a biweekly basis. Over time, the DPCP contact person has changed, but GCHD staff have consistently remained very pleased with the support and encouragement they have received from the state staff. DPCP staff helped GCHD by providing recommendations for resources to use in developing the intervention, by providing moral support through the process, by helping to ensure that the scope of the project was realistic given the time available, and by assisting GCHD staff in developing reasonable expectations for this effort.

The DPCP and Garfield County are geographically quite far from each other, but DPCP did make a site visit in September 2007, which coincided with the unexpected departure of one of the GCHD DPPI-IFA team members. This was a challenging time for GCHD, and DPCP's support during this time was very helpful and important to the DPPI-IFA team.

1.2.1.2 Description of the Intervention

GCHD responded to the RFP released by the DPCP in order to receive funding to conduct diabetes screening in the community. At the time the RFP was released, GCHD was working on their Partners for Life (PFL) Personal Health Challenge effort that involved engaging community members to (1) collect baseline health measures, (2) report their weight and blood pressure on a monthly basis, and (3) connect people to their primary care provider. The aim of the PFL was to empower people to “know their numbers” and become actively involved in maintaining their own health. Thus, it seemed like a natural fit to apply for DPPI-IFA funding and conduct diabetes and prediabetes screening to complement the work being done through the PFL.

Goals and Objectives. The aim of the DPPI-IFA work was to develop and implement a diabetes and prediabetes assessment tool to assess individuals’ risk for diabetes, inform them of their results, and connect them to providers, if needed. Ultimately, project staff wanted to engage individuals to take action about their own risk for diabetes.

How Interventions Were Chosen. Once they had received funding from the DPCP, project staff began meeting on a weekly basis to develop the intervention. They decided to use the American Diabetes Association (ADA) paper test to conduct their screenings. Because of their experience with the PFL, they knew they wanted to engage community members through diabetes and prediabetes screening yet were not sure how to define their population. After much discussion, they decided to focus on Garfield County employees because this gave them a large enough group of people to recruit. Garfield County was not explicitly recruited as a partner in the DPPI-IFA effort, but GCHD DPPI-IFA staff met with county employees in informal settings (such as out in the community) and by receiving permission from county employers to attend meetings (e.g., meetings at the school). County employees included those working in various worksites, such as public schools, the health department, the court office, the road department, and the sheriff’s department. Garfield County has an estimated 250 county employees. GCHD DPPI-IFA staff aimed to reach 220 county employees through their screening intervention.

Population at Risk and Recruitment. As mentioned above, DPPI-IFA staff decided to focus on Garfield County employees as part of their DPPI-IFA effort. They originally planned to recruit people to complete the ADA paper test by identifying one champion at each worksite and having him or her distribute the screening forms to employees. They quickly realized this would not work because the champions simply did not have the time or incentive to get this done. Instead, it was more effective for project staff to go to worksite meetings (e.g., teacher’s meetings, city council meetings) to conduct a brief, 10-minute presentation and administer the paper tests on the spot. The 10-minute presentations combined the PFL work with the DPPI-IFA effort, so they would present on these initiatives, provide some educational information, and conduct a demonstration health assessment on a

volunteer from the audience. Following the presentation, the screening forms were available for people to complete and return. Incentives were available to those completing the health assessment for PFL; although this was not directly related to the DPPI-IFA work, the incentives (a blood pressure cuff and scale) encouraged people to do the health assessment and many people then also completed the diabetes risk assessment. Project staff also conducted some outreach by going out to meet county employees in the morning where they congregated, such as at the county coffee shop.

In total, DPPI-IFA staff conducted 8 meetings and recruited roughly 150 county employees to complete the screening form. No data were available on the percentage of county employees who attended the 8 meetings.

Systems for Tracking and Follow Up of Participants. After the diabetes risk screening forms were completed, DPPI-IFA project staff took the screening forms and tabulated the results back at their office. Scores were mailed to each individual. Data on each individual were also entered into the electronic database developed for PFL. After mailing scores out, a GCHD staff member followed up by phone with at-risk participants to encourage them to take some action and schedule an appointment with their provider. Because the purpose of this program is to engage people up to the point of referral, no further interaction with county employees is planned using DPPI-IFA funding. DPPI-IFA staff did not ascertain and record whether each participant had insurance or a primary care provider.

Individuals who were identified as being at risk for diabetes or prediabetes could see any provider they chose (their own primary care provider or a provider at the county clinic). County employees are eligible for health insurance through their employer, but it was unclear whether every county employee (e.g., employees working part-time schedules) was able to take advantage of the county employee health insurance.

Data Systems for Evaluation. A database had been developed for the PFL effort, and information (e.g., contact information and risk assessment score) collected through the DPPI-IFA has been integrated into the database. At the time of the RTI interview with GCHD, results from the screening were not available.

Future Directions. GCHD will integrate the ADA paper risk test screening into the PFL project, allowing the screenings to continue after DPPI-IFA funding ends. GCHD is considering implementing an educational component to address prediabetes, but they have not figured out how or when this would be done.

1.2.2 REACH Coalition

1.2.2.1 Description of Partner

The Seattle-King County REACH 2010 Coalition is a CDC-funded project to eliminate health disparities within minority populations (REACH stands for Racial and Ethnic Approaches to Community Health). The REACH Coalition includes representatives from the School of Nursing and School of Nutritional Sciences at the University of Washington and from more than 15 community-based organizations in the Seattle-King County area. The goals of the REACH Coalition are to (1) increase opportunities for diabetes education and self-care, (2) increase personal awareness of potential risk for diabetes, (3) increase community awareness of diabetes, and (4) increase community support for people with diabetes.

When the Washington DPPI-IFA RFP was initially released, REACH did not plan to respond because of the short turnaround time to write the proposal. However, after receiving few applications, the DPCP approached REACH and specifically asked them to submit an application. The DPCP had worked with REACH before and were familiar with the agencies involved in the coalition and the work they were doing in the Seattle-King County area.

Thus, REACH responded to the DPPI-IFA RFP with three partners collaborating on the effort. CMCH, SeaMar, and ICHS partnered with Public Health—Seattle & King County, which works with REACH as the liaison between participating REACH agencies and organizations and CDC, to apply for the funding. The three agencies agreed to focus their interventions on screening their target audiences for prediabetes, and each agency developed a plan of action tailored to their specific population and its needs. Public Health—Seattle & King County provided the administrative lead and technical assistance to help in responding to the RFP and developing individual interventions.

All three agencies had been involved with REACH since 1999 and had extensive experience in diabetes care and education. ICHS is a community health clinic providing care to the Asian and Pacific Islander population in Seattle-King County. SeaMar is a health center specializing in providing Latinos with a variety of services, including medical, dental, family support, behavioral health, and social services. CMCH is a community-based organization with diabetes resources for African Americans in the area.

Staffing. Each of the three participating REACH agencies (SeaMar, ICHS, and CMCH) had one person designated as the DPPI-IFA lead for that particular organization. This person attended all the DPPI-IFA REACH meetings, developed the intervention for their agency, and participated in the screening efforts. In addition to this lead person, ICHS utilized two medical assistants in the screening efforts, and SeaMar had a health educator who also administered screenings. SeaMar also had an administrative assistant who attended various REACH DPPI-IFA meetings.

Communication and Technical Assistance from DPCP. Interaction between REACH and DPCP began when REACH was working on the funding proposal. The DPCP helped write the scope of work and edited and provided feedback throughout the process. The DPCP encouraged REACH to include the screening as part of their DPPI-IFA work.

Once funded, the DPCP attended regular meetings with the three REACH agencies as they began to develop their interventions. DPCP staff listened to the discussions, offered suggestions, and provided resources when appropriate (e.g., provided REACH with published literature pertinent to the interventions, obtained Chinese-language materials for one of the agencies). REACH felt that working with the DPCP was a very positive experience and that they were very helpful and responsive.

1.2.2.2 Description of the Intervention

When the three participating agencies in the REACH Coalition began work on DPPI-IFA, they first decided to get feedback from community stakeholders to better understand their perspective on what needed to be done in diabetes primary prevention. Together, the three agencies brainstormed a list of key stakeholders in diabetes-related issues in the Seattle-King County area. A total of 37 people were identified, and interviews were ultimately conducted with 11 stakeholders from community organizations, clinics, the health department, government, and businesses in the area. The information collected through the interviews was used to inform intervention development. The intervention described below focuses primarily on the screening component of the intervention rather than on stakeholder feedback.

Goals and Objectives. REACH came together with the goal of developing the infrastructure of a community team to develop a multipronged science-based and culturally appropriate strategy to prevent type 2 diabetes. Following advice from the stakeholder assessment, they decided to screen for prediabetes and diabetes among community members served by each of the participating agencies. They saw the screening as an opportunity to assess the prevalence of prediabetes in the community and to see whether community members would be interested in additional education for prediabetes. They discovered that many people do not realize they are at risk, and the screening offered the opportunity to inform and educate people about their risk and current health. REACH saw this funding mechanism as a learning opportunity and a good chance to begin diabetes primary prevention work.

Although each of the three agencies planned individually how to implement the screenings for their target audience, they began the intervention development process by meeting as a larger group to talk through some of the issues and to share resources. For the first 3 months, they met two to three times per month to discuss pertinent issues related to developing an overall direction for their DPPI-IFA work. An example of an issue they addressed was developing a protocol for how to respond when a screened individual was

found to have extremely high blood sugar levels. After meeting together, they then worked independently to decide where the screenings would occur and to choose the screening tool that was most appropriate for each target audience respectively.

1.2.3 REACH Coalition Partners

1.2.3.1 Sea Mar Community Health Services

How Interventions Were Chosen. SeaMar decided to use the ADA risk assessment for screening purposes and made some minor edits for a Spanish translation. They normally do not provide glucose testing and the screenings would be administered by a peer educator and program manager, rather than a medical professional, so they concluded that the paper test was the best choice for them. As part of the screening protocol, they collected the individual's name, phone number, address, resulting score, where the person was referred (if needed), and what information was shared with the individual. No information was collected on health insurance status or whether the individual had a primary care provider.

Population at Risk and Recruitment. SeaMar focused their efforts on screening the Hispanic and Latino community. They specifically wanted to target family members of persons with diabetes because they already had access to this population and the time frame for conducting the intervention was limited. SeaMar already employed a peer educator who conducted 6-week diabetes education classes; this peer educator, along with the program manager, conducted the screenings with family members of the diabetes education class students. They also reached people through screenings at Diabetes Day and at church on Sundays. In many cases, the peer educator and program manager had to help people read through the screening tool and explain the results. People identified as at risk for prediabetes were referred to SeaMar clinics and were given information about REACH classes.

Algorithms Used for Screening. SeaMar used the ADA paper risk assessment to screen for prediabetes. They had both an English version and a Spanish version of the screening tool.

Systems for Tracking and Follow Up of Participants. SeaMar did not track or follow-up with individuals who completed the screening form.

Data Systems for Evaluation. SeaMar did not develop any data systems for evaluation.

Future Directions. SeaMar plans to culturally tailor a prediabetes educational curricula for the Hispanic and Latino population. It will differ slightly from the diabetes education they currently provide, and the health department diabetes educator will help with the tailoring process.

1.2.3.2 International Community Health Services

How Interventions Were Chosen. ICHS chose to do a blood test for their screening because the ADA risk assessment is not translated into Vietnamese, and they did not like the translation of the Chinese version. The agency has two Medical Assistants who conducted the screening.

Population at Risk and Recruitment. ICHS focused their intervention on Vietnamese and Chinese Americans. Given the timing of the intervention, they decided to conduct screenings at a local Tet festival celebrating the Vietnamese New Year. They already were planning to have a booth at the festival, so adding the screening component was an easy step. Festival attendees who were interested in being screened came to them. They had both a community peer educator and two Medical Assistants involved in the screening process and were able to screen more than 200 people that day. Although they did reach a large number of people, they were only able to get names and information recorded for 100 people because of the time it took to record this information. Individuals identified as being at-risk for diabetes were referred to the ICHS clinics or their own provider, if available.

Algorithms Used for Screening. ICHS used a blood test (nonfasting, finger stick) to screen for diabetes and prediabetes.

Systems for Tracking and Follow-Up of Participants. Contact information was collected for 100 participants. Follow-up was limited to contact to encourage those at-risk to attend REACH classes. They were unable to assess who visited their provider as a result of the screening.

Data Systems for Evaluation. ICHS did not develop any data systems for evaluation.

Future Directions. ICHS plans to continue the screenings, but they may not be limited to screening for prediabetes. One reason that ICHS opted not to conduct prediabetes educational trainings in the future is because of the challenge in deciding which language(s) to offer the classes in. The populations they serve speak about 39 different languages, so offering classes in one language would only reach a small segment of their community.

1.2.3.3 Center for Multicultural Health

How Interventions Were Chosen. CMCH chose to screen using the paper ADA risk assessment mainly because they are a community organization and do not have the medical facilities needed to do other means of testing. They made minor modifications to the screening form and added a list of community clinics that they were referring people to.

Population at Risk and Recruitment. CMCH focused their intervention on the African American community and, because of the timing of the intervention, decided to recruit participants through an African American community festival. Recruitment was done by

mingling and speaking with people throughout the festival and encouraging them to complete a screening form. They also screened a few additional people at a health fair the following week. In all, they were able to screen 27 individuals but only got contact information for 20, because many people were resistant to giving out their names and personal information. Everyone who was screened was given a list of clinics they could go to for additional information and treatment, if needed.

Algorithms Used for Screening. CMCH used the ADA paper risk assessment to screen for diabetes and prediabetes. The screening form was adapted slightly to include the names of area clinics and local resources.

Systems for Tracking and Follow Up of Participants. Contact information was gathered from participants to possibly include them in future diabetes education classes if they have diabetes or prediabetes. If such classes are held, CMCH will follow-up with those who screened positive for prediabetes and diabetes to invite them to attend.

Data Systems for Evaluation. CMCH did not develop any data systems for evaluation.

Future Directions. Because CMCH does not have a clinic affiliated with the organization, these screenings will not be continued after DPPI-IFA funding ends.

I.3 Results

I.3.1 Community and/or Organizational Level

The DPCP and partners felt that this was a successful intervention for their organizations because it gave them the opportunity to begin addressing diabetes primary prevention and prediabetes. Many of the partners acknowledged that this was something they were interested in doing, and this funding opportunity allowed them to take some action. It also allowed the DPCP to build relationships with community organizations. The DPCP had been particularly interested in working with REACH, but previous opportunities did not work out. Thus, this funding opportunity helped to cultivate the relationship between the Washington DPCP and REACH.

In Garfield County, the GCHD was able to enhance their health assessment screening by including prediabetes screening along with the other measures being collected through the PFL Personal Health Challenge. They are including the measure in their database demonstrating that this is a highly sustainable systems-level change.

For the REACH Coalition agencies, participation in the DPPI-IFA effort allowed them to obtain feedback from key stakeholders on ways to address prediabetes in the Seattle-King County area. It also gave them the chance to interact with community members around the

topic of prediabetes, to get a sense of the prevalence of the condition, and to get informal feedback on whether people would be interested in education on the topic.

1.3.2 Individual Level

Exhibit I-4 provides an overview of results available from the screening efforts conducted by GCHD, SeaMar, ICHS, and CMCH. All at-risk individuals were referred to providers for further medical advice and care. During Phase 3 of funding, SeaMar and GCHD plan to implement some educational classes for people at-risk for diabetes.

Exhibit I-4. Results: Individual Level (Washington)

Inter- vention Phase	Measure	Common Measure or Other	GCHD	SeaMar	ICHS	CMCH
Screening	Number in target audience	O	250			
	Number (%) reached through awareness activities	O				
	Number (%) recruited for screening	O	150	20	200+	27
	Number (%) high-risk	C	N/A ^a	8 (40%)	33 (17%)	19 (70%)
	Number (%) who followed up for screening	C				
	Number (%) for whom results are available	O				
	Number (%) prediabetes, diabetes, and normal	C				

^a At the time of the interview, results from the screenings were not available.

1.4 Tools Used or Developed by State

The partners involved in the DPPI-IFA effort did not report many tools that they used to develop and implement their interventions. As reported elsewhere, three of the four partner agencies used the ADA paper risk test for screening. The DPCP was helpful in obtaining materials in other languages (e.g., Chinese) for partner use in the interventions. They also passed along diabetes materials from the ADA (e.g., consensus guidelines, screening tools), as well as journal articles and the *Small Steps, Big Rewards* guidelines. Similarly, the DPCP shared some resources that GCHD had used with the REACH agencies for intervention development. No other resources were mentioned by the participating partners.

I.5 Facilitators to Success

The main facilitators to success were related to strong existing relationships among the partners and with community members and in-kind resources for the intervention.

Relationships. The DPCP and partners seemed to have strong working relationships that facilitated implementation. All partners reported that the Washington State DPCP was an extremely helpful partner to have in developing and implementing the interventions. DPCP staff were very helpful in discussing issues with intervention development, providing resources, and helping the organizations work through any challenges that may have arisen.

Understanding the Target Audience. In talking with the REACH agencies, it was clear that their ability to tailor the program to meet the specific needs of their populations was a factor in the partners' ability to reach their community members. ICHS was able to reach more than 200 individuals by attending a popular Tet festival and recruiting participants there. They made the choice to attend the festival because they knew, through extensive experience working with the Vietnamese American and Chinese American communities, that this was an important event for their target audience. Similarly, CMCH found that, while it was challenging to recruit people to participate, they had far more success when they found the right time and way to approach people at the community and health fairs they attended. All three REACH agencies acknowledged that persistence and finding a way to connect with people were other facilitators to recruiting individuals for screening. Because these three agencies had a history of working with their specific communities and a history of working in the diabetes field, they were able to effectively tailor their screening programs to allow them to reach as many people as possible given the time and funding available for the intervention implementation.

Existing Resources. GCHD found that having the PFL program and database already in place facilitated their work with DPPI-IFA. They have already experienced challenges in obtaining health measures from people and were able to use that experience to make recruitment for this work easier. GCHD was also able to benefit from personal connections and relationships that were especially strong given the fact that GCHD is situated in a small, rural community. At the state level, we heard that the resource lists that they received were very helpful, as were the Common Measures.

I.6 Challenges

The DPCP and partners all felt that their work with DPPI-IFA was a learning experience. Nonetheless, they faced several challenges along the way.

Lack of Interest by Community. GCHD initially thought it would be easy to get community members to complete the ADA paper risk form. They expected to be able to go places where they could meet GCHD employees, pass out the forms, and then collect them.

Instead, they learned that many people are not interested in knowing their potential risk for diabetes. Often, community members acknowledged that they simply were not ready to deal with knowing that they may have prediabetes. They felt that they had enough challenges in their lives, and they could not deal with one more problem. DPPI-IFA staff at GCHD theorized that those who did not want to complete the form may have been less healthy and were already aware of it. They thought that these individuals may not have wanted to fill out the form and have the fact that they were at-risk for diabetes “thrown in their face.”

Resources. Many of the partners reported that the time for developing and implementing the intervention was very limited, so the entire process was rushed and, in many cases, partners had to limit the opportunities for recruiting participants. In addition, funding for this effort was less than was actually needed to effectively implement a screening intervention, so staff members found themselves donating a great deal of time to the project. REACH found that the lack of time was especially challenging because their coalition had decided that they needed to reach consensus before moving ahead with any decision, and that took away from time to implement the intervention. Sea Mar also found that, because many of the people they screened needed assistance reading the screening form, it took longer to screen one person than they originally anticipated thus making it hard to reach more people within the time frame of the intervention.

Challenges with Follow-Up. Partners would have liked to obtain full contact information for the individuals they screened in order to follow-up with them several months after the screening, but they found that many people were resistant to providing that level of detail. In addition, the short time frame for this intervention meant that the partners ran out of funding and did not have the time or resources to follow-up with the individuals they had screened.

Challenges in Institutionalizing Diabetes Screening with Providers. One of the partners mentioned that incorporating prediabetes screening into regular medical prevention was a challenge because many people in their community did not have coverage for prediabetes screening through their health insurance. In addition, many of the community members reported that providers were unconcerned with elevated blood glucose levels and did not feel that the patient should worry about their screening results.

I.7 Lessons Learned

Washington State DPCP staff and partners shared several lessons learned based on their experiences implementing their DPPI-IFA work:

- It takes more than \$4,000 to implement a screening intervention regardless of whether a paper test or a blood test is used. Without more funding, staff must donate time to the project.

- When conducting screenings, it is important to develop a protocol for what to do when someone is found to have very low or very high blood sugar levels.
- When using a blood screening tool, you may need more people than anticipated to collect contact information from individuals and then screen them.
- If you are implementing the screening to complement an existing program, some of the start-up time may be less, but other tasks, such as modifying tools, can take additional time.
- It is very important to engage the public and use personal contacts where possible.

I.8 Future Work in Diabetes Primary Prevention and Sustainability of Current Interventions

All partners expressed interest in continuing efforts in diabetes primary prevention, but the ways in which they can sustain their DPPI-IFA work differs. GCHD plans to continue screening community members for diabetes and prediabetes. They will make the screening standard practice as part of their health risk assessment. Because they had an existing program of collecting personal health measures as part of a prevention effort, this work can be sustained more easily than by some of the other partners.

Sea Mar may continue the screening, with recruitment occurring through their clinic and at community events. Sea Mar will be implementing an educational curriculum for people with prediabetes. ICHS will continue to conduct preventive screenings but will not be focused exclusively on prediabetes. Finally, CMCH does not anticipate being able to sustain the diabetes screenings because they do not have any clinics affiliated with their organization and do not have the time or resources to implement the screening in other ways.

At the state level, DPCP staff acknowledged the importance of focusing on prediabetes awareness and education. Ideally, they see value in expanding the state-level efforts to include media campaigns for both individuals and providers to increase awareness of the link between prediabetes and increased risk for diabetes and cardiovascular disease. At the same time as the media campaign, they would want to have community-based classes to provide individual education and assistance to address prediabetes. Another critical component would be to enact systems-level changes addressing prediabetes and diabetes. However, at this time, these are mainly hopes for the future because there is currently no additional funding for prediabetes.

APPENDIX J: EPILOGUE

This appendix provides updates on activities occurring in the Diabetes Primary Prevention Initiative Interventions Focus Area (DPPI-IFA) states since the site visits were conducted in the summer and fall of 2007. These updates have been written by Diabetes Prevention and Control Program (DPCP) staff in each DPPI-IFA state.

DPPI-IFA EPILOGUE FOR CALIFORNIA

New Partners

All partners remained the same during the Phase 3 intervention in California. The partners for this phase of the project were the California Diabetes Program, Sutter Medical Foundation, and the Sacramento Bee.

Update on Previous Activities

Since the initial RTI site visit to Sacramento, all facets of the Phase 3 DPPI intervention in California with the Sacramento Bee have been completed. Forty-five Sacramento Bee employees were screened for diabetes risk at the employee health department. Of the 45 screened, 38 were found to be at high risk for diabetes and 40 went on to have an OGTT. After the screening process was completed, 33 participants went on to complete the DPPI intervention, including 67% of those diagnosed with prediabetes. The results of the DPPI Sacramento Bee intervention are as follows:

CA DPPI Phase 3 (Sacramento Bee) Intervention Outcomes			
Screening Outcomes			
Number of employees screened (with survey)			46
Number at high risk (according to screening survey)			38
Percentage at high risk (according to screening survey)			82.6%
Number who got OGTT (includes high risk and not high risk)			40
Percentage of high risk who got OGTT (high risk only)			86.8%
Diagnostic Testing Outcomes			
Number diagnosed with prediabetes			6
Percentage of high risk diagnosed with prediabetes			15.8%
Number diagnosed with diabetes			0
Percentage of high risk diagnosed with diabetes			0.0%
Attendance Outcomes			
Number referred to DPPI class			45
Number registered for DPPI class			38
Number who complete DPPI class			33
Percentage with prediabetes who complete DPPI class			66.7%
Number of Classes Attended			
Number Who Attend DPPI Class	0	0	0.0%
	1	3	7.9%
	2	2	5.3%
	3	3	7.9%
	4	3	7.9%
	5	7	18.4%
	6	8	21.1%
	7	12	31.6%
	Average:	5.1	
Patient Outcomes			
Average percentage weight loss			0.1%
Percentage completing DPPI reporting at least 150 minutes of exercise at last visit			42.4%
Percentage change in waist circumference			-1.0%
Average percentage change in SBP (negative number indicates lower BP after program)			-1.4%
Average percentage change in DBP (negative number indicates lower BP after program)			-3.1%

Author:
Roger Chene

DPPI-IFA EPILOGUE FOR MASSACHUSETTS

Update on Previous Activities

Lightolier has continued to support worksite health and has made significant changes following the Diabetes Prevention Intervention offered by Diabetes Association, Inc. The CEO has developed a Wellness Task Force headed by the Occupational Health Nurse and the Vice President of Human Resources which includes representatives from both the corporate and union sectors. Permanent changes have been made to the breakfast and lunch menus offered at the cafeteria, including the addition of low-fat, low-carbohydrate options, brown rice and whole wheat pasta. Each day, the chef highlights a “Healthy Choice” meal and the “Healthy Choice” selections are color-coded for easier recognition.

Lightolier has also sponsored Weight Watchers at Work for employees and the management is exploring creating a walking track and having a physical trainer provide an on-site physical activity program. Several of the participants in the 9-week intervention continue to weigh in weekly with the Occupational Health Nurse.

Finally, there is interest in repeating the program, with a focus on strategies to engage more employees from the manufacturing sector.

New Activities

The Massachusetts Department of Public Health (MDPH), Division of Health Promotion and Disease Prevention has convened initial meetings with organizations who have a vested interest in employee health in southeastern MA to implement a comprehensive worksite health improvement collaborative in Bristol County. The worksite collaborative will provide employers with tools for building infrastructure, conducting environmental scans and health risk assessments, providing targeted interventions, using claims data, understanding and utilizing insurance benefits and creating a worksite environment that facilitates healthy behaviors.

New Partner

Healthy City Fall River

Authors:

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DPPI-IFA EPILOGUE FOR MICHIGAN

Future Diabetes Prevention Activities

The Michigan Diabetes Prevention and Control Program (DPCP) will continue to work with their prevention partners, Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) and Northern Michigan Regional Diabetes Initiative (NMRDI). There are no plans to provide additional training for Women, Infant, and Children (WIC) staff.

The Lenawee County WISEWOMAN program has extended their pilot diabetes project to allow all clients in the program to take advantage of the diabetes screening. Preliminary data from the pilot program, from October 1, 2006, through November 30, 2007, show 220 women screened, with 154 normal (70%), 12 diagnosed with diabetes (6%), and 54 diagnosed with prediabetes (24%). All nine local WISEWOMAN program added fasting glucose testing for their clients by February 1, 2008. The local programs are partnering with local diabetes self-management education (DSME) programs, assuring that each woman diagnosed with diabetes or prediabetes receives follow-up medical attention and education. As the programs begin to screen clients, the DPCP is working with the state WISEWOMAN program to incorporate the lessons learned from the pilot to offer Diabetes Primary Prevention (DPP)-based classes and community incentives (e.g. gym memberships) to women who are diagnosed with prediabetes.

The NMRDI has made much progress in its first year and will continue implementing their Year 1 plan, as they move forward with the 10-year strategic plan. The DPCP funds the local diabetes outreach network, TIPDON. The TIPDON Director is a member of the NMRDI Steering Committee, and the network will continue to serve as a primary resource for the NMRDI. As of September 2007, the NMRDI completed the 11-county diabetes survey and are working with the DPCP statistician to analyze data. Funding was secured for the initiative, and a full-time coordinator was hired. The NMRDI has started visiting physician offices; providing education; and delivering the tool kit, which was developed last year. The DPCP will continue to serve as a resource for the NMRDI through staff input as needed, with the possibility of additional funding as they begin their second year.

The DPCP will complete a communication plan, implementing marketing activities in the next year. Additionally, the DPCP is working with the state arthritis program to develop and implement a diabetes prevention pilot with a local YMCA. The DPCP is also exploring partnering with the Personal Action Toward Health (PATH), the Michigan chronic disease self-management program, to train WISEWOMAN lifestyle counselors to deliver programs locally.

Author:

Michigan Diabetes Prevention and Control Program

DPPI-IFA EPILOGUE FOR MINNESOTA

Since the RTI site visit to Minnesota in August 2007, significant work has continued on the intervention activities. This report briefly highlights activities from September 2007 through January 2008.

DPCP Infrastructure

Staffing. No significant staffing changes occurred in the Minnesota Diabetes Program (MDP). Rita Mays, Jay Desai (DPPI PI), and Gretchen Taylor (MDP Supervisor) continued to work with the I CAN Prevent Diabetes, policy change efforts at the state level, and Institute for Clinical Systems Improvement (ICSI).

Funding. In Phase 3, the only changes in the budget are that \$3,500 was budgeted for the Expo ad but it was not run this year, and \$1,600 was used for the Minnesota Diabetes Steering Committee (MDSC) Marrero Seminar. Phase 3 in-kind actual dollars should be increased as follows:

1. *DPCP funds/in kind supplies/other.* Add \$5,500 (MDP paid I CAN Prevent Diabetes training and start-up materials, and ECHO DVD copy and postage).
2. *Partner in kind intervention supplies.* Add \$3,400 for Phase 3 (Steps paid some ICAN Prevent Diabetes training and program expenses).
3. *Partner in kind staff.* Add \$44,900: New Total is \$67,350 for Phase 3. (I CAN Prevent Diabetes training and recruitment time, PAAG, HSPC. Includes estimated \$10,000 of time by CDC Fellow working in Steps and coordinating I CAN Prevent Diabetes program with local programs).

Additional Key Partners

I CAN Prevent Diabetes (Individuals and Communities Acting Now to Prevent Diabetes) partners. MDP and Steps to a HealthierMN collaborated to plan, recruit sites, train facilitators, and start this DPP 16-week program in three sites. This was only in the conceptual stage in August. Steps Coordinators in Rochester, Willmar, and St. Paul recruited the Olmsted Medical Center, Rochester Area Family YMCA, Willmar Rice Diabetes and Nutrition Education Center, Khandyohi YMCA, Open Cities FQHC Clinic, and St. Paul Park and Recreation Center.

Results

Family History of Diabetes is the theme of prevention awareness messages. (1) The ADA Expo in October 2007 drew 10,800 consumers (compared with 4,300 in 2006). The 2007 MDP booth message "*Type 2 diabetes runs in families. Talk to your family about how to avoid getting type 2 diabetes*" was well received. We used NDEP reports to track by zip and area codes again, seeing a slight increase from 2006, mostly from health professionals.

(2) The family history theme was adopted by the Minnesota Diabetes Collaborative, 15 major health organizations in Minnesota that come together to promote a consistent diabetes messages and best practices. A press release has been written, to be issued March 25 for ADA's Diabetes Alert Day, and a collaborative family history message has been developed for "fans" and are seeking funds to print these.

Health Systems and Policy Change (HSPC). (1) The HSPC Action Group developed a prediabetes algorithm, which was submitted to the ICSI workgroup revising the type 2 diabetes guidelines. Key messages will be used but not the algorithm itself. It is also being used as a template for the DPPI Algorithm workgroup as a tool for clinics. (2) The HSPC was invited to review the new ICSI Primary Prevention of Chronic Disease guidelines. They suggested that ICSI add references to the DPP as an evidence-based lifestyle intervention that has been proven effective; the workgroup has not yet responded. (3) MDP staff presented on prediabetes and the I CAN project and work on ICSI guidelines to the Governor's Health Care Transformation Task Force, also integrating systems dynamic modeling information and surveillance data. MDP is also influencing the Health Care Quality Summit, a group of 60 policy makers who have included diabetes quality care in their focus. Both initiatives aim to contain costs associated with chronic disease and risk factors. The MDP goal for both groups is to move their thinking more downstream toward prediabetes, by using our surveillance systems and intervention work.

Prevention Awareness Action Group (PAAG). (1) Members of this MDSC action group helped to promote the Preventing Diabetes: Research to Reality seminar by Dr. Marrero to about 75 health professionals, to increase awareness of the power of prevention using the DPP in YMCA sites. (2) PAAG has begun planning a survey of ICSI members to assess prediabetes awareness, diagnosis, and treatment practices in Minnesota health care settings, to be completed by March 2008. This is an integrated effort with the DPPI Surveillance team, PAAG and HSPC Action Groups, and ICSI.

Steps to a HealthierMinnesota. (1) ECHO DVDs. 2,559 DVDs and 1,260 study guides were distributed to 143 groups. (2) Steps-DPP. 13 staff in three Steps sites completed a 3-day training led by Dr. David Marrero and Emily Anderson from the University of Indiana Diabetes Translation Research Center. Also trained 4 other staff from LaClinica Clinic and St. Paul YMCA for future programs. Classes started January 15 in Rochester and will begin February 5 in Willmar and March in St. Paul. Patients with elevated fasting blood glucose are referred by their clinics. Many are identified by clinics using their electronic medical record. (3) SDM Integration. Heather Devlin, from the DPPI SDM team, integrated a short version model of the SDM for Steps to a HealthierMN staff. This visual also proved beneficial in influencing state policy efforts.

Additional Tools Developed Since August 2007

- Family History EXPO display and poster for the 2008 DDT conference

- Prediabetes algorithm and recommendations were submitted to ICSI.
- To order ECHO DVD, go to <http://www.health.state.mn.us/diabetes/echodvd/>.
- To view I CAN Prevent Diabetes materials and logo, go to <http://www.health.state.mn.us/diabetes/ican.html>.

Additional Facilitators to Success, Challenges Faced, and Lessons Learned

- Increasing health care costs are drawing more attention to prevention possibilities, their costs, cost savings, and cost -effectiveness.
- Policy makers are more receptive to prevention opportunities to cut health care costs. We plan to evaluate the cost of implementation of the I CAN Prevent Diabetes program to answer some questions.
- Identifying patients with high blood glucose via electronic medical records appears to be a viable way to identify participants to get the I CAN Prevent Diabetes program started. A catchy logo and program name and standardized, free training have helped recruit sites. Planning and recruitment are time-intensive.
- Strong partnerships and collaborations are the foundation of all that we do.

Author:
Minnesota Diabetes Prevention and Control Program

DPPI-IFA EPILOGUE FOR WASHINGTON STATE

Update on Previous Activities

At the time of the RTI site visit in September 2007, the Garfield County DPPI project was “on hold” because of a break in their contract. Their amended/continuing contract resumed in early December 2007, and the team began meeting again. They plan to conduct a lifestyle intervention in January/February 2008, even though their team now consists of three members instead of five. They are working on reconstructing the Accounting 4 Health database.

The REACH coalition continues to meet regularly, and usually a DPCP staff member is able to join those meetings.

New Activities

The REACH Coalition determined that they would provide DPPI lifestyle classes at the sites of two of their partners. Those partners are Sea Mar Community Health Centers, Seattle; the lifestyle classes were held at the Burien, Washington, clinic (southwest Seattle). This clinic serves mainly a Spanish-speaking population, so the 8-week curriculum was presented in Spanish by the peer educator and some special guests: a nutritionist and peer educator from a different clinic who offered some physical activity tips to the attendees. The classes got off to a somewhat bumpy start as a power outage occurred the evening of the first session and that meeting had to be rescheduled. Below are some comments from attendees and clinic staff/physicians:

“I want to say that as a doctor, the REACH program classes have been such an amazing EYE OPENER for me. Hearing the specific challenges patients have in exercising and taking their medications has made me a better doctor. I can guesstimate their challenges and ask them about this before they leave. I also enjoyed very much teaching about the medication. It’s fun and easy with the PowerPoint that Edgar came up with, and it builds confidence between me and the patients. Also, it’s so easy to volunteer when the classes are here in Burien.

This also underlines the need in my mind for excellent, point-of-care patient educators in the clinic who can give our patients with chronic disease (asthma, diabetes, obesity, hypertension, high cholesterol) quick, concise teaching with clear concise handouts. I suggested we should all come down on a Saturday, and clean out the current lunch room and move it next door, and prepare it for a new patient educator.

We could also use the time to beautify our clinic—we need to hang stuff on the walls and make it family friendly. We need to have educational materials on the walls in the patient rooms as well as in the waiting room so patients have something to read

while they wait for us. We need TVs in the waiting room so our low literacy patients get the same messaging as our high literacy patients.

While I'm at it, I think radio is so important to the success of our community outreach and public health messaging. It was a complete success in Nicaragua at the women's health clinic I volunteered at and I know it can work here. With the radio out of commission, we can use this as an opportunity to think outside the box and get more steady programming at an outside radio station or even have our own! It's a big goal, and I think it's achievable with 1 person dedicated to it and a good grant.

Enthusiastically,

Julian Perez, MD"

"I want to thank everyone for participating in last night's final class and celebration of the Diabetes Prevention Program pilot. It was a lovely evening and a treat to connect with the participants and hear about their experiences with the program. By all accounts, this effort was a success! Joel lost 40 lbs, Heidi lost 10 lbs, and Maria also achieved some weight loss. According to their testimonies, this class has not only impacted their lives but also the lives of their families... Both Joel and Heidi said their new understanding of nutrition has influenced what they now prepare for their families... Joel now understands how to really exercise. He no longer exercises with a beer at his side and he has the whole family using the exercise DVD Nelson and Edgar made. The list of accomplishments goes on... There is no better recruitment tool than positive word of mouth. Joel and others already have friends and family interested in our next diabetes prevention class!

Congratulations to everyone for making this pilot program possible in such a tight timeframe. We've developed a strong curriculum and experience to help our Spanish-speaking patients to develop healthy lifestyle practices. We will continue this class alongside our cycle of diabetes education classes, beginning in April.

*A ***special*** thanks to the instructors of the class: Edgar Lopez, Marilee Randall, Nelson Lopez and Sr. Miguel Alvarado. Well done!*

Muchísimas gracias,

Antoinette

*Antoinette Angulo, MPH, CHES
Health Education Program Manager"*

The REACH program at Sea Mar CHC has decided to offer two sets of classes: one for people with diabetes and one for people at risk for diabetes. These will be offered in alternate

cycles throughout the year at the Burien location with the possibility of extending the classes to other clinics, such as the one in the South Park neighborhood.

The second REACH site was at the Center for Multicultural Health in Seattle; they serve the African American community of central Seattle. Their DPPI 8-week curriculum was presented in English and was completed in mid-December 2007.

The REACH Coalition is very positive about making lifestyle classes for diabetes prevention part of their regular offerings to the community.

New Partners

None.

Authors:

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