

Evaluation of the Medicaid Coverage for the National Diabetes Prevention Program Demonstration Project

**Final Report
[Executive Summary]
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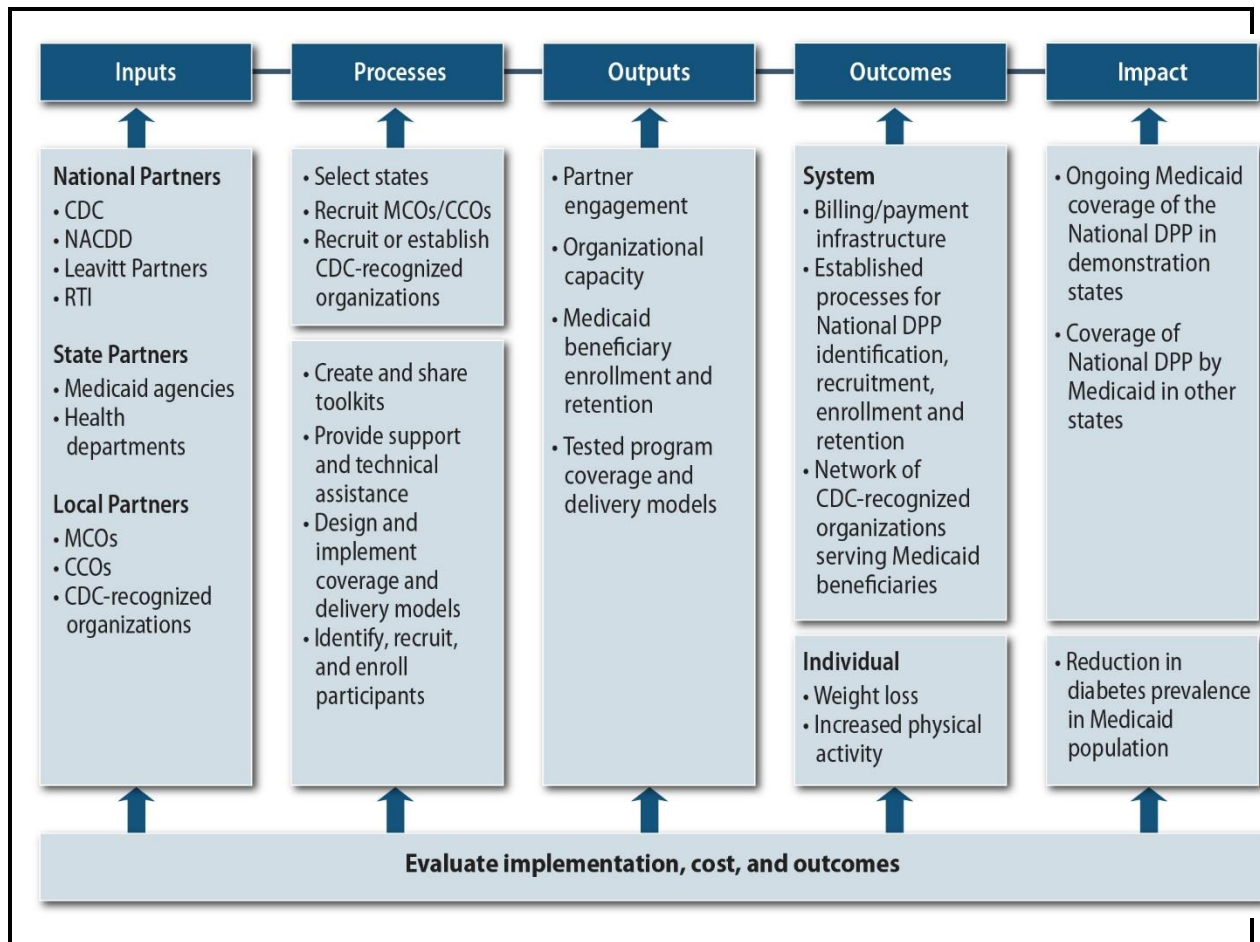
Executive Summary

Approximately 30.3 million people in the United States have diabetes, or 9.4% of the population (Centers for Disease Control and Prevention, 2018). Socioeconomic disparities in the prevalence of type 2 diabetes are notable and increasing (Beckles & Chou, 2016; Brown et al., 2004; Centers for Disease Control and Prevention, 2017). During the period 1999 to 2002, people with incomes less than 100% of the US poverty level had a 3.7 percentage points higher prevalence of type 2 diabetes than those in the highest income group ($\geq 400\%$ of the poverty level). This absolute difference in prevalence between the two income groups increased to 5.5% during the period 2011 to 2014 (Beckles & Chou, 2016).

Disparities in type 2 diabetes prevalence among low-income populations could be addressed by improving access to and coverage of the evidence-based National Diabetes Prevention Program (National DPP) lifestyle change program for people with prediabetes. Although the National DPP lifestyle change program, which is based on the landmark Diabetes Prevention Program (Knowler et al., 2002) clinical trial, can prevent or delay the onset of type 2 diabetes, there is concern that low-income populations may have limited access to coverage for this program.

State Medicaid agencies (SMAs), the leading insurers for low-income people in the United States, have an opportunity to implement coverage of the National DPP lifestyle change program for people with prediabetes. Data from the National Association of Chronic Disease Directors (NACDD) demonstrate that as of 2018, only seven states (California, Minnesota, Montana, New Jersey, New York, Texas, and Vermont) have some form of Medicaid coverage for the National DPP lifestyle change program (National Association of Chronic Disease Directors and Leavitt Partners, 2017). The Medicaid Coverage for the National Diabetes Prevention Program Demonstration Project (hereafter referred to as the Medicaid Demonstration Project or the Demonstration) was created to address this gap. The Medicaid Demonstration Project, funded by the Centers for Disease Control and Prevention (CDC) and managed by NACDD, was carried out in two states (Maryland and Oregon were selected through a competitive process and were funded from July 2016 through January 2019) to demonstrate how SMAs, in collaboration with state health departments (SHDs), can implement delivery models for the National DPP lifestyle change program for Medicaid beneficiaries at high risk for type 2 diabetes through managed care organizations (MCOs) or accountable care organizations (ACOs). In the context of the Medicaid Demonstration Project, delivery models are defined as the comprehensive set of elements, including actual program delivery, screening and referrals, patient activation and retention, and billing and payment, that the SMA can delegate to one or more MCOs or ACOs. The Medicaid Demonstration Project's ultimate goal was to learn about both successes and challenges and engage stakeholders in two states to advance understanding of how to achieve sustainable coverage of the National DPP lifestyle change program for Medicaid beneficiaries under current Medicaid authorities. **Figure ES-1** shows a simplified conceptual framework of the Demonstration, highlighting key inputs, processes, outputs, outcomes, and impact.

Figure ES-1. Conceptual Framework of the Medicaid Demonstration Project



Note: CCO = coordinated care organization, which is similar to an ACO.

ES.1 Overview of Demonstration

ES.1.1 Maryland Medicaid Demonstration Project

Approximately 800,000 adult beneficiaries were enrolled in Maryland’s Medicaid program as of November 2018. Maryland has used mandatory managed care, known as HealthChoice, for most of its Medicaid beneficiaries since 1997 (The Hilltop Institute, 2018). As of December 2016, Medicaid MCOs covered 84% of Maryland’s Medicaid beneficiaries; the other 16% are covered through Medicaid fee-for-service, which includes enrollees who are dually eligible for Medicaid-Medicare and those who are in long-term care facilities and other waiver programs (Maryland Department of Health, n.d.). Beneficiaries enrolled in HealthChoice can choose from one of eight MCOs (increased to nine MCOs in 2018) that are available through the program. Maryland Medicaid, in collaboration with Maryland’s Center for Chronic Disease Prevention and Control (the Center), was funded to implement a delivery model for the National DPP lifestyle change program to Medicaid beneficiaries. These two agencies are co-located within the Maryland Department of Health (MDH) and report to the Secretary of Health. The Center provides a statewide focus on building the National DPP, provides diabetes prevention expertise to the Medicaid Demonstration Project, and collaborates with Maryland Medicaid to provide technical assistance to MCOs and CDC-recognized organizations selected to participate in the Demonstration. The Center also maintains a referral and data collection website, known as behealthymaryland.org.

Four Medicaid MCOs—Amerigroup, Priority Partners, Jai Medical Systems (Jai), and MedStar Family Choice (MedStar)—were selected to implement the National DPP lifestyle change program for Medicaid beneficiaries at risk for type 2 diabetes. The intent of the funding was to allow these MCOs to build a sustainable infrastructure for diabetes prevention for their at-risk beneficiaries. Most of these beneficiaries were in four areas which Maryland Medicaid targeted in the first year of the Demonstration: Baltimore City, Baltimore County, Montgomery County, and Prince George’s County. Maryland Medicaid expanded the available jurisdictions statewide during the second year of the Demonstration. Each of the MCOs contracted with CDC-recognized organizations to provide the National DPP lifestyle change program online, in person, or both. All MCOs contracted with Omada Health, an online CDC-recognized organization. Jai used Omada Health as their sole CDC-recognized organization, and Amerigroup contracted with an additional online CDC-recognized organization, Retrofit. Amerigroup also contracted with Soul So Good/Collins Wellness Center to provide in-person delivery of the National DPP lifestyle change program. MedStar contracted with two YMCAs and two MedStar hospitals to provide in-person National DPP lifestyle change programs. Priority Partners contracted with the Brancati Center for the Advancement of Community Care, a Johns Hopkins School of Medicine entity. The Brancati Center worked closely with Priority Partners to assist in screening of participants and then worked with community-based organizations by providing training, providing materials, managing data and analyses, and providing oversight of programs. MDH engaged the Hilltop Institute to conduct analyses to target specific counties for the Demonstration and to provide MCOs with lists of eligible Medicaid beneficiaries for recruitment.

ES.1.2 Oregon Medicaid Demonstration Project

Oregon’s Medicaid program, known as the Oregon Health Plan (OHP), is implemented through the Oregon Health Authority’s (OHA) Health Systems Division. To ensure better health and coverage for Medicaid recipients, Oregon created coordinated care organizations (CCOs) in 2014. CCOs, which are similar to ACOs, are collaborations among communities, health care providers, health plans, and hospitals intended to integrate physical, behavioral, and oral health care under global budgets that incentivize value-based service delivery and patient outcomes for OHP beneficiaries. As of December 2018, 571,406 adult Medicaid beneficiaries were OHP members and enrolled in either fee-for-service or one of the 16 CCOs. The state of Oregon implemented the Medicaid Demonstration Project through OHA’s Health Systems Division and Public Health Division. OHA used the Health Systems Division’s focus on preventive services and the Public Health Division’s community collaborative infrastructure, the Sustainable Relationships for Community Health model, as a funding mechanism.

Local public health agencies funded 3 of the state’s 16 CCOs to deliver the National DPP lifestyle change program to their Medicaid recipients. The CCOs were FamilyCare Health (FamilyCare), Health Share of Oregon (Health Share), and Trillium Community Health Plan (Trillium). FamilyCare provided OHP coverage in four counties: Clackamas, Multnomah, Washington, and parts of Marion County. Health Share had a similar geographic coverage area: Clackamas, Multnomah, and Washington counties. Trillium covered Lane County. CCOs’ global budgets enable them to use flexible funds and administrative dollars to fund the community to implement evidence-based programming. FamilyCare and Health Share used the same CDC-recognized organizations, including the Asian Health Services Center, the African American Health Coalition, the YMCA of Columbia-Willamette, and the Lifestyle Medicine Group. In addition, Oregon Health & Science University’s (OHSU) Harold Schnitzer Diabetes Health Center provided a Spanish-language lifestyle change program class in Clackamas County for Health Share and FamilyCare members. Health Share and FamilyCare also offered the National DPP lifestyle change program online through Omada. Trillium delivered the National DPP lifestyle change

program to members in Lane County by offering the program in house (i.e., Trillium became a CDC-recognized organization) and through the Eugene Family YMCA. In addition to providing a Spanish-language National DPP lifestyle change program to Health Share and FamilyCare members, the Harold Schnitzer Diabetes Health Center at OHSU provided training and technical assistance to CDC-recognized organizations and helped Health Share recruit eligible members. The Coraggio Group, a Portland management consulting group, provided coaching and technical assistance to state agencies, CCOs, and other local Sustainable Relationships for Community Health partners involved in the Medicaid Demonstration Project.

ES.2 Evaluation Methods

RTI International and NACDD conducted a mixed-methods evaluation involving program and participant-level data, guided by a detailed evaluation plan developed with CDC and expert panel input. They developed 10 evaluation questions (EQs) on the program in two major domains: delivery models (EQs 1–5) and enrollment/engagement/retention (EQs 6–10). Additional evaluation questions were developed to evaluate the National DPP Coverage Toolkit (National Association of Chronic Disease Directors and Leavitt Partners, 2017) and the technical assistance provided as part of the Medicaid Demonstration Project (described in a separate report). *Table ES-1* contains the 10 program evaluation questions.

Table ES-1. Evaluation Questions for the Medicaid Demonstration Project

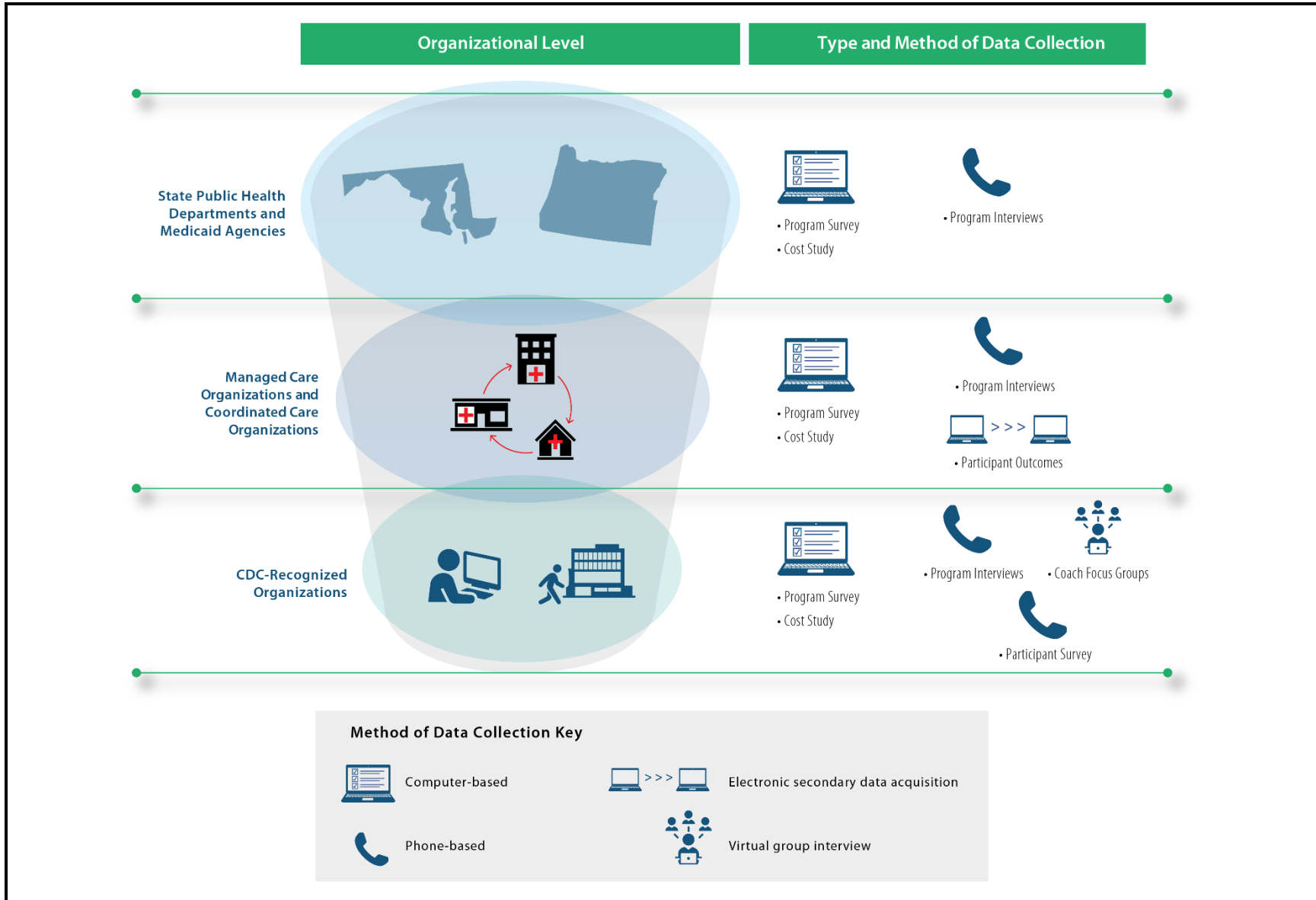
1. What delivery model design decisions were made for the Medicaid Demonstration Project, and what factors influenced these decisions?
2. How were the delivery models implemented for the Medicaid Demonstration Project, and what factors may have influenced implementation?
3. What were the costs of implementing the National DPP lifestyle change program for each delivery model for Medicaid beneficiaries?
4. What benefits accrue to Medicaid agencies and MCOs/CCOs with the implementation of the National DPP delivery model?
5. What factors support replicability and sustainability of the states' National DPP delivery models for Medicaid beneficiaries?
6. How many (and what proportion) of the states' Medicaid beneficiaries diagnosed with or at risk for prediabetes were engaged in, were enrolled in, were retained, and completed the National DPP lifestyle change program?
7. How did states engage and recruit beneficiaries to enroll in the National DPP lifestyle change program? What were the recruitment outcomes and factors associated with recruitment?
8. How did delivery programs retain Medicaid participants? What were the retention outcomes and factors associated with retention?
9. What are differences in client satisfaction, knowledge, and behaviors for the different models: online vs. in-person; CDC full vs. CDC pending recognition; and new vs. existing CDC-recognized organizations?
10. (a) Did Medicaid participants achieve the expected outcomes to meet the standards of the Diabetes Prevention Recognition Program? Which participants were most likely to achieve these outcomes? (b) What benefits did participants experience through participation in the program? What were the social and behavioral outcomes?

In implementing this mixed-methods evaluation, RTI conducted five distinct data collection activities: program implementation surveys, program interviews and focus groups, a cost study, three participant surveys (participant baseline, discontinuation, and follow-up surveys), and secondary data

collection on participant attendance and outcomes (i.e., Diabetes Prevention Recognition Program [DPRP] outcomes data collected for the Medicaid Demonstration Project, or DPRP outcomes data).

Figure ES-2 provides a visual overview of the data collection activities and organizational levels where data collection took place.

Figure ES-2. Overview of Data Collection for the Medicaid Demonstration Project Evaluation



The *program implementation survey* (i.e., program survey), in combination with program interviews, was the primary method used to answer evaluation questions concerning decisions made when designing delivery of the model and factors influencing those decisions; the number and proportion of each states' Medicaid beneficiaries diagnosed with prediabetes who were identified and enrolled in the program; the strategies used to engage, recruit, and retain beneficiaries; and how the delivery models were implemented for the Demonstration. RTI implemented the program survey at three levels: state, MCO/CCO, and CDC-recognized organization.

To enhance and expand data collected from the program survey, *program interviews* at each organizational level provided data on the planning and implementation of the National DPP lifestyle change program for Medicaid beneficiaries. Interview protocols were developed for SMAs/SHDs, state contractors, MCOs/CCOs, and CDC-recognized organizations. In Year 2, focus groups were held with lifestyle coaches of a sample of CDC-recognized organizations.

To answer EQ3, regarding the costs required to implement the National DPP lifestyle change program for Medicaid beneficiaries, RTI implemented the *Medicaid Demonstration Project cost study* (i.e., the cost study). RTI developed Excel-based cost data collection tools (i.e., cost study tools) using an activity-based costing approach. This approach identifies all activities and resources (labor and non-labor) used in implementing the program and the total cost of each activity and resource. RTI developed separate tools for each organizational level of the program: SMAs/SHDs, MCOs/CCOs, and CDC-recognized organizations. The tools were structurally the same for each organizational level but were organized around implementation activities relevant to the level. At the MCO/CCO level, payments by MCOs/CCOs to CDC-recognized organizations were captured and reported as payment per participant (calculated as the sum of all payments divided by number of participants enrolled). RTI also developed a separate tool to capture the ongoing costs of delivering the program by CDC-recognized organizations. For this tool, the organization reported all costs, including administrative and overhead costs as well as direct program delivery costs, associated with providing services in a typical month.

The *participant baseline, discontinuation, and follow-up surveys* (i.e., participant surveys) were developed to assess the beneficiary experience with the National DPP lifestyle change program. The participant surveys assessed baseline and follow-up satisfaction with the program, health status, recruitment and enrollment practices of the program, incentives received, barriers and facilitators to participating in the program, lifestyle behaviors that may be affected by participation in the National DPP lifestyle change program, and participant characteristics. Each participant was invited to participate in two surveys. The first survey was a baseline survey administered to everyone after they had enrolled in the program. Participants received one of two surveys after the baseline survey. The discontinuation survey was administered to those who did not complete at least four classes within 6 months of enrollment. The follow-up survey was administered to all remaining participants—in other words, those who completed four or more sessions within 6 months of enrollment.

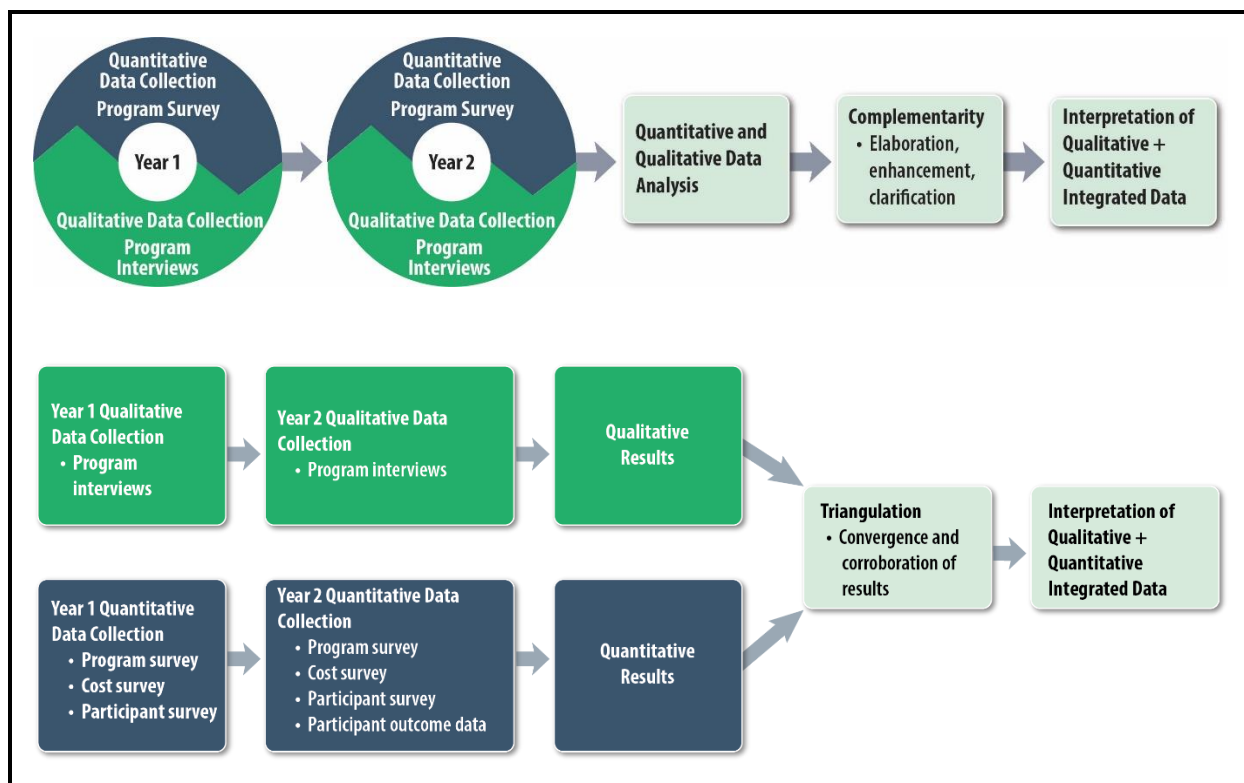
Secondary data on participant attendance and outcomes (i.e., DPRP outcomes data) were obtained from CDC-recognized organizations via the MCOs and CCOs. Collection and analysis of secondary data were designed to answer evaluation questions regarding whether Medicaid participants achieved the expected outcomes of weight loss and increased physical activity minutes. Collection and analysis also were designed to support analyses involving retention and the number of sessions attended. Data elements included all items as specified in the 2015 DPRP Standards for recognition (CDC, 2015), including organization code; participant ID; participant state; participant's prediabetes determination, age, ethnicity,

race, sex, and height; and for each session, the session type and date, participant weight, and physical activity minutes.

Data analysis included simple descriptive methods, multivariate models, and a mixed-methods approach with a systematic process to identify the highest-priority evaluation questions and sub-questions for qualitative and quantitative data synthesis. The main quantitative analyses for the program survey and participant surveys were descriptive. Analyses for the program interviews and focus groups were also descriptive; using NVivo, transcribed notes from interviews and focus groups were organized and coded by topic area, organization type, and state. RTI then analyzed coded notes for themes within and across states. Analyses of the cost study were primarily descriptive, but also included simple linear regression models to examine variation in costs at the MCO/CCO level and, for CDC-recognized organizations, average cost per participant. Retention and weight loss outcomes for the Demonstration were compared to national data from the DPRP, based on 2018 DPRP Standards (CDC, 2018; CDC, personal communication, October 24, 2018). In addition, RTI conducted multivariate analyses to determine factors associated with participant retention and weight loss at 12 months.

For analysis of most of the evaluation questions, RTI used a simple sequential explanatory model. Because data collection activities happened in order (program survey followed by program interviews, followed by both data collections in Year 2), the instruments could be modified to enhance what was learned via the other data sources (*Figure ES-3*). RTI used a concurrent triangulation design to answer the evaluation questions regarding outcomes of recruitment, retention, weight loss, and variation in cost (*Figure ES-3*).

Figure ES-3. Mixed Methods Analyses for the Medicaid Demonstration Project Evaluation



ES.3 Key Findings

ES.3.1 Demonstration Outcomes, Including Replicability and Sustainability

The Medicaid Demonstration Project advanced the development of new reimbursement and delivery models for Medicaid beneficiaries with prediabetes. Across two states and seven MCOs/CCOs, the Demonstration tested strategies for participant identification, eligibility assessment, recruitment, and retention; strategies for building and maintaining a delivery network; and specifics of reimbursement models.

Agencies in both of the Demonstration's states are moving towards a sustainable plan for continuing the National DPP lifestyle change program for Medicaid beneficiaries. Maryland is seeking a Section 1115 demonstration waiver that would authorize continued provision of the National DPP lifestyle change program on a limited basis after the Demonstration ends. Oregon's Health Evidence Review Commission has already approved covering the National DPP lifestyle change program as a Medicaid benefit, to begin in January 2019.

The evaluation of the Medicaid Demonstration Project generated multiple specific recommendations, detailed below, in areas of planning, organizational capacity, strategies for engaging and retaining Medicaid beneficiaries, and developing a delivery network that can benefit SMAs and MCOs/CCOs.

ES.3.2 Implementation

Partnerships between state Medicaid and public health agencies were collaborative and effective. Moving forward, when scaling the National DPP for Medicaid beneficiaries, partnering with SHDs can contribute to Medicaid and MCO organizations' capacity to reach and enroll participants, engage existing CDC-recognized organizations, and engage new community-based organizations to offer the National DPP lifestyle change program.

MCOs and CCOs demonstrated variation in readiness to effectively implement the National DPP lifestyle change program among Medicaid beneficiaries. Establishing new reimbursement models and contracting between organizations proved to be larger challenges than anticipated. More time was needed than originally planned, as evidenced by a several-month delay in initiating enrollment. Demonstration participants recommended at least a 6-month planning period for MCOs/CCOs. Start-up may be much easier, however, for other states, which can build on the work of the Medicaid Demonstration Project when building their own delivery models. An SMA can facilitate start-up by centralizing some aspects of decision-making, such as developing reimbursement models. In this Demonstration, frequent meetings and communications among organizations helped overcome challenges to implementation.

MCOs/CCOs expressed the desire for sufficient staff time to ensure adequate support toward this initiative. In the context of this Demonstration, MCOs and CCOs often discussed the need for a dedicated full-time project manager for the National DPP lifestyle change program, along with additional field staff to identify and recruit participants and engage with CDC-recognized organizations. These recommendations may be specific to this Demonstration, however. The evaluation cannot provide information on ideal MCO/CCO staffing for a later stage once delivery models are built, or in scenarios where the National DPP lifestyle change program is a covered benefit and a delivery network is already established. It should be noted that staffing needs may also depend on the size of the state, number of Medicaid beneficiaries, etc.

In terms of building a delivery network, MCOs and CCOs reported specific advantages and disadvantages to using in-person versus online CDC-recognized organizations to reach Medicaid beneficiaries and effectively deliver the National DPP lifestyle change program. When considering start-up efficiency and delivery effectiveness, factors such as ease of initiating the program, ease of setting up a contract, ability to capitalize on the peer support inherent to in-person classes, capacity for data reporting and exchange, and credibility with a community all appear to be important considerations for MCOs/CCOs. Satisfaction appeared greater among in-person program participants. Online participants attended fewer sessions on average but achieved greater weight loss. Offering both types of programs may be beneficial. Offering or building an “in-house” option to offer the program within an MCO or CCO (or ACO) is an additional strategy.

Other organizational partners (academic, community-based, nonprofits) can support Medicaid agencies and MCOs/CCOs in areas such as training lifestyle coaches, engaging health care providers, recruiting and retaining participants, and supporting CDC-recognized organizations. Additionally, for MCOs/CCOs working with community-based CDC-recognized organizations, other partners can help provide training and technical assistance on topics such as managing and reporting data, and setting up systems for tracking recruitment and retention efforts.

Organizations participating in the Medicaid Demonstration Project developed and reported on numerous strategies to enhance recruitment of Medicaid participants; these strategies can benefit other states. Participant recruitment was a challenge for some MCOs and CCOs, especially within the constraints of the Medicaid Demonstration Project timeline. Direct outreach, particularly phone calls by staff at the MCO/CCO and CDC-recognized organization levels, emerged as a frequently used and effective strategy. For online programs, email emerged as an effective strategy. Interviewees said tailoring messages to be well received by the target population was critical to successful outreach. Tailoring could mean that they were customized with personal messages and cultural references, written at the appropriate literacy level, offered in languages in addition to English (i.e., Spanish, Vietnamese), or any combination of these. Partnering with community-based organizations that were trusted within the community was also important for successful participant recruitment. Organizations employed multiple strategies simultaneously to reach enrollment target numbers.

Participant barriers to engaging in the National DPP lifestyle change program affected retention. According to the lifestyle coaches and the CDC-recognized organization staff in general, Medicaid participants faced life challenges that affected their ability to attend class regularly. Some participants’ life circumstances changed, and they became hard to reach. For example, some participants had health and disability challenges that affected their ability to fully participate. As reported by a limited sample of people who did not complete the program, reasons for discontinuing the program included general availability, including issues of schedule and timing (16.2%) and not being able to get away from work (9.5%); language preferences (8.1%); specific family commitments (8.1%); and lack of childcare (4.1%).

CDC-recognized organizations and MCOs/CCOs employed multiple strategies to retain participants. Interviews with CDC-recognized organization staff suggested that strategies to support engagement in the program and overcome barriers to participation (e.g., transportation assistance, child care) were more effective at facilitating retention than incentives. Findings from the participant survey suggest that overall, participants were satisfied with incentives, though the sample size was too small to investigate satisfaction with different types of incentives. MCO/CCO staff identified additional strategies (phone calls and texts) to support engagement and strategies to foster peer support and a sense of

accountability. CDC-recognized organizations also designed flexible make-up sessions and held them individually either over the phone or before or after a subsequent class. They also allowed participants to bring their children to class and provided classes in other languages, such as Spanish and Korean. Online program retention strategies included automated email messages and health coach outreach through messaging and phone calls.

Use of CDC-recognized organizations that were relatively new to offering the program may have added to delays in implementation and increased costs. At least one MCO devoted a great deal of time to starting new programs, which may have contributed to program delay. In the exploratory cost models, lower costs were associated to CDC-recognized organizations with more experience offering the National DPP lifestyle change program.

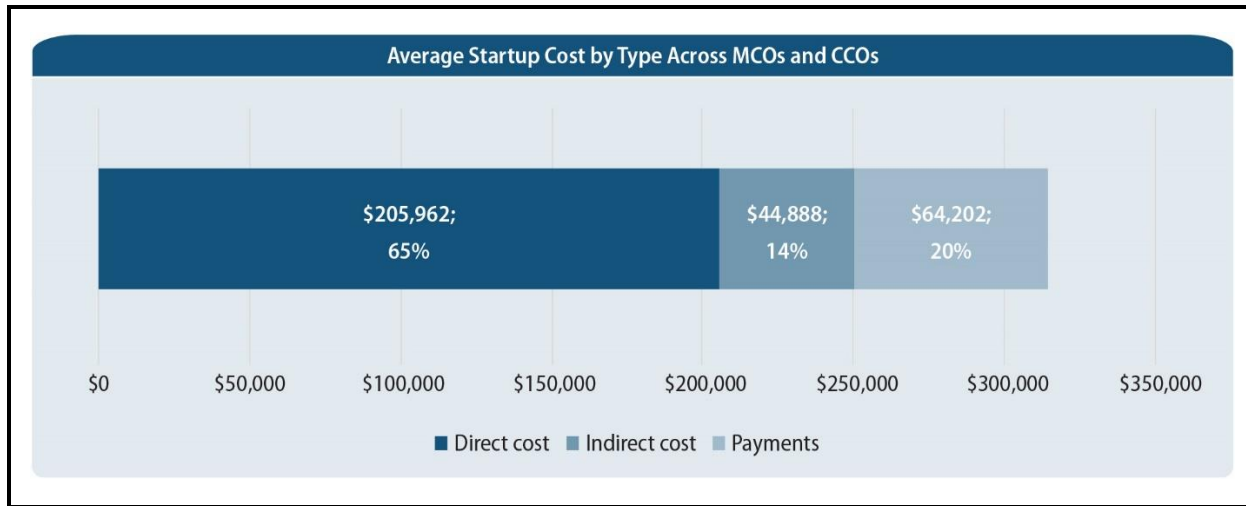
Strategies were employed to enhance the delivery of the National DPP lifestyle change program to meet the needs of participants such as tailoring materials or handouts to lower the literacy levels; using community health workers for outreach; using program support services, such as assistance with transportation and childcare, to help participants overcome access barriers; and tailoring communications and outreach to keep participants engaged.

Enhanced involvement of medical providers could have been valuable in the participant recruitment and retention process. There was some evidence of provider recruitment to refer patients, but there was little evidence that providers were receiving information about their patients' participation in the program or facilitating participant engagement/retention. Organizations recommended more time, such as a longer planning period, to put these processes in place; other recommendations included focusing on a limited number of large provider groups and establishing formal referral processes.

ES.3.3 Costs

In the start-up period of building delivery models, payments to the CDC-recognized organizations were a small percentage of the total costs for MCOs/CCOs. MCOs/CCOs spent the most on direct costs (65%) such as labor, material, and service costs (see details in the paragraph below), followed by payments to CDC-recognized organizations for providing the National DPP lifestyle change program to the Demonstration participants (20%) and indirect costs, such as those related to overhead expenses (14%) (*Figure ES-4*). Other states should be prepared for a period of resource investment to develop reimbursement models and the delivery network, but it is the hope that the learnings from the Medicaid Demonstration Project can minimize that investment. Measuring ongoing costs at the MCO/CCO level once the program is better established would be helpful.

Figure ES-4. Average Start-Up Cost by Type Across MCOs and CCOs



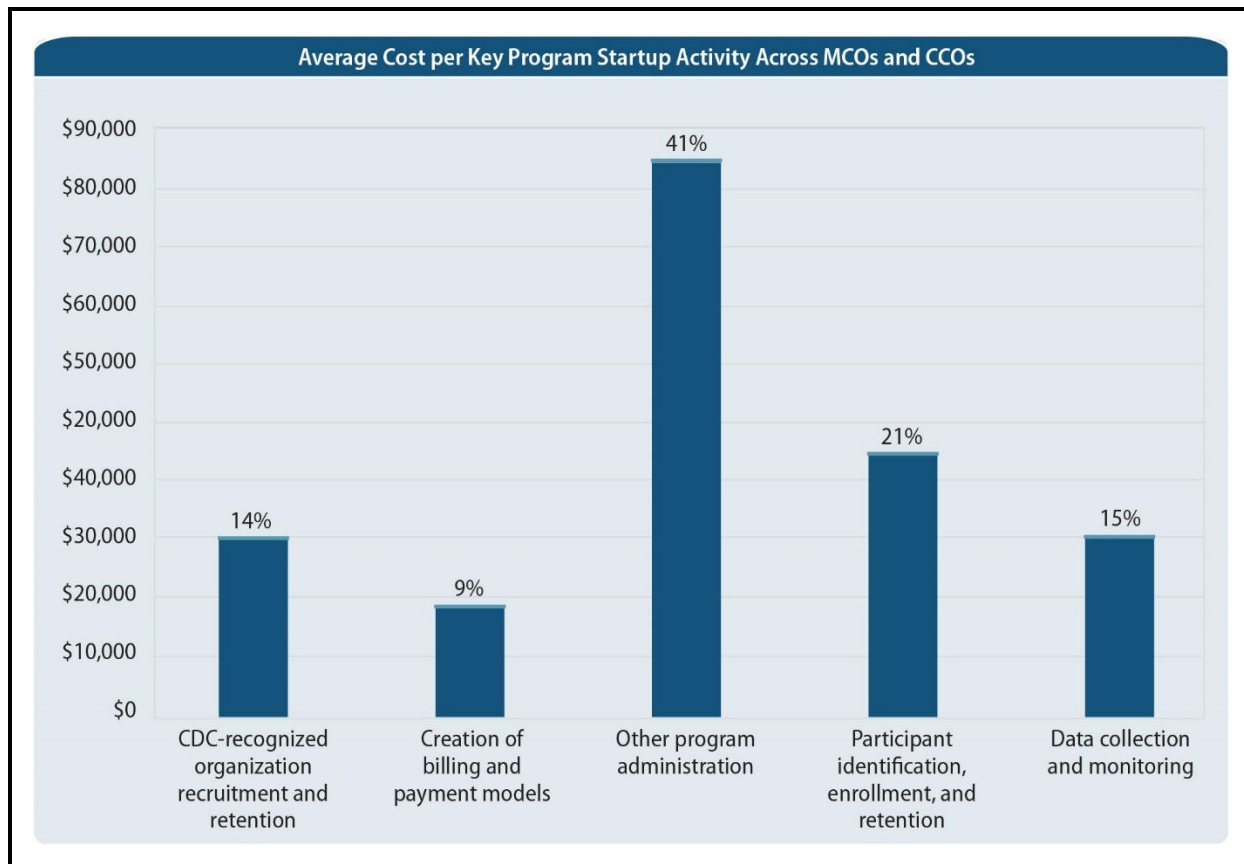
Direct Cost = Direct cost of resources such as labor, materials, and services. This excludes overhead costs.

Indirect Cost = Overhead costs of organizational operation. This generally includes costs such as facilities, utilities, and other expenses that are key to organizational operation but not directly related to program delivery.

Payments = Payments from MCOs/CCOs to CDC-recognized organizations to deliver the National DPP lifestyle change program to the Demonstration participants.

Most MCO/CCO costs were associated with activities that were not specific to the Medicaid Demonstration Project, i.e., activities that were not related to data collection and evaluation (\$176,070: 85% of direct costs). By resource category, labor was the largest component of direct costs (\$184,493: 90% of direct costs); across program activities, program administration was the largest component (\$84,670: 41% of direct costs). Furthermore, MCOs and CCOs devoted considerable funds to participant identification, enrollment, and retention; data collection and monitoring; and the creation of billing and payment models, which comprised 21%, 15%, and 14% of direct costs, respectively (see *Figure ES-5*).

Figure ES-5. Average Cost per Key Program Start-Up Activity Across MCOs and CCOs



Costs varied widely across MCOs/CCOs. This may be because of challenges related to organizational or population characteristics that vary across MCOs/CCOs and CDC-recognized organizations. We examined the correlation between observed MCO/CCO characteristics and start-up costs. Although the small sample size meant no correlations were statistically significant, the correlations between methods of recruitment, retention, and lifestyle coach training were large and worthy of further exploration.

Costs also varied widely across CDC-recognized organizations. This variation was especially prominent for ongoing program costs per enrolled participant (including administrative and overhead costs as well as direct program delivery costs), which were \$1,704 for newly established in-person CDC-recognized organizations, \$1,529 for established in-person CDC-recognized organizations, and \$556 for online CDC-recognized organizations. Because ongoing costs of program delivery are driven largely by fixed costs, organizations delivering the program online can minimize costs per participant by spreading these fixed costs across a large number of participants. In-person delivery organizations may also be able to minimize costs through economies of scale (albeit not as extreme). Examination of the correlation between organization characteristics and costs showed that costs are correlated with organizations' ability to recruit and retain participants, class size, lifestyle coach training requirements, and the length of time the organization has offered the National DPP lifestyle change program. Because of small sample size, none of these correlations were statistically significant; however, they indicate some possible approaches for organizations to minimize costs through economies of scale. A systematic review of the literature on program costs found a large range in costs as well: \$417 to \$5,881 per participant (Li et al., 2015).

Some of the costs MCOs/CCOs and CDC-recognized organizations incurred to reach and support the Medicaid participants, such as costs for incentives (e.g., gift cards, coupons) and program support services (e.g., transportation, childcare), may not be reimbursable by Medicaid. MCOs/CCOs reported that 36% of total costs were funded by in-kind contributions, although we do not know what these specific costs were.

Reimbursement models may not cover costs of the CDC-recognized organizations. The average ongoing cost per participant (including administrative and overhead costs as well as direct program delivery costs) for established and new in-person CDC-recognized organizations was \$1,529 and \$1,704, respectively, and the average payment per participant to in-person CDC-recognized organizations was \$595. For online CDC-recognized organizations, payments were closer to ongoing costs, but were still not enough to cover all costs (\$350 payment/participant vs. \$556 cost/participant).

ES.3.4 Participant Outcomes

Retention was comparable to national data from the CDC’s DPRP registry. Analyses used a sample defined by 2018 DPRP Standards’ criteria to compare Demonstration participants (in-person and online) to participants in the national DPRP registry (in-person, online, distance, and combination) who met the criteria of having 12 months elapsed since enrollment, attending 3 or more sessions in the first 6 months, and remaining in the program for at least 9 months. Demonstration participants attended an average of 19 sessions in the first 6 months and 8 in the second 6 months (n = 129), compared with 17 and 7 sessions, respectively, for participants in the national DPRP registry using 2018 DPRP Standards’ criteria. In a separate retention analysis among all Demonstration participants for whom 12 months had elapsed since enrollment (n = 390), the median number of sessions attended was 15, and the mean number of days enrolled was 174 (*Table ES-2*). Participant age and participant health status (i.e., participants indicating they were of excellent or good health compared to those that indicated they were not) were associated with higher retention.

Table ES-2. Summary of Retention Among Those at 12 Months Post-Enrollment

	Total Participants (n = 390)	MD Participants (n = 230)	OR Participants (n = 160)	In-Person Participants (n = 167)	Online Participants (n = 223)
Average (median) number of sessions attended	16 (15)	14 (11)	18 (19)	16 (19)	15 (12)
Average number of days enrolled	174	145	216	228	133
Number (%) of eligible participants attending at least 16 sessions in months 1–6 and at least 6 sessions in months 7–12	61 (15.6%)	38 (16.5%)	23 (14.4%)	27 (16.2%)	34 (15.2%)
Number (%) of eligible participants attending at least 9 sessions in months 1–6 and at least 3 sessions in months 7–12	124 (31.8%)	52 (22.6%)	72 (45.0%)	81 (48.5%)	43 (19.3%)

Weight loss was 4.5%. Analyses used a sample defined by 2018 DPRP Standards’ criteria to compare Demonstration participants (in-person and online) to participants in the national DPRP registry (in-person, online, distance, and combination) who met the criteria of having 12 months elapsed since enrollment, attending 3 or more sessions in the first 6 months, and remaining in the program for at least 9

months. Demonstration participants lost an average of 4.5% of their body weight (n = 122), compared to 6% among participants in the national DPRP registry using 2018 DPRP Standards' criteria. The total number of sessions attended by Demonstration participants was significantly associated with weight loss.

Although health status and knowledge about prediabetes did not appear to change pre- and post-participation, **likelihood of physical activity did improve.**

ES.3.5 Organizational Outcomes

Engagement in the Medicaid Demonstration Project and the building of delivery models increased aspects of organizations' capacity to address type 2 diabetes prevention for Medicaid beneficiaries. These included enhanced relationships among organizations to address the burden of type 2 diabetes in communities and a strong commitment to pursuing sustainable models for delivery of the National DPP lifestyle change program.

ES.4 Implications for Policy and Practice

Findings in this report can, for the most part, be interpreted as an evaluation of a demonstration program. The goal of the Demonstration was to show how SMAs, in collaboration with SHDs, can implement sustainable delivery models for the National DPP lifestyle change program to Medicaid beneficiaries at risk for type 2 diabetes through MCOs and CCOs, with the ultimate goal of achieving sustainable coverage of the National DPP lifestyle change program for Medicaid beneficiaries under current Medicaid authorities. To a great extent, however, these models were embedded in and implemented as part of this Demonstration project. Aspects of implementation (e.g., the general timeline and enrollment deadlines; the need, in some cases, to build a delivery system of CDC-recognized organizations) may have affected the overall participant outcomes. The impact of these features of the Demonstration on the participant outcomes, however, cannot be discerned.

Other findings (e.g., effectiveness of strategies for recruitment and retention; the role of tailoring the curriculum and program delivery) may have been less specific to the Demonstration itself, and thus may have more external validity. Notably, in measuring costs of program delivery and total costs to organizations, we did attempt to separate Demonstration costs from totals.

Results from the Demonstration evaluation are immediately applicable to SMAs who wish to implement the National DPP lifestyle change program as a demonstration or a pilot, or as a covered benefit. For example, states can use results related to identification and recruitment of participants by MCOs/CCOs and CDC-recognized organizations; selection of International Classification of Diseases, 10th revision (ICD-10) codes and Current Procedural Terminology (CPT) codes for the process of developing billing and coding processes; and processes for implementing contracts, data use agreements, and data exchange between MCOs/CCOs and CDC-recognized organizations. Other features of the model, such as physician referral systems, enrollment of the CDC-recognized organizations as Medicaid providers, and the use of claims-based billing, were explored as a part of this Demonstration, but not required. Although the evaluation does not provide detailed information about these processes, lessons learned and individual models will be helpful for other states looking to implement coverage for the National DPP lifestyle change program.

The major takeaways from the Demonstration can be summarized in two areas: lessons learned for serving the Medicaid population and lessons learned for replicability.

Lessons learned for serving the Medicaid population

The Demonstration provides evidence that the National DPP lifestyle change program can be implemented through Medicaid managed care to engage, enroll, and retain Medicaid beneficiaries with prediabetes in an effort to decrease the risk of type 2 diabetes. SMAs and MCOs/CCOs achieved key aspects of the delivery models, such as negotiating reimbursement models and building delivery networks of CDC-recognized organizations. Based upon the data available from this demonstration, online delivery of the program is feasible, but there may be unique considerations for online versus in-person delivery. States working toward Medicaid coverage for the National DPP lifestyle change program may consider both delivery modes in an effort to increase Medicaid beneficiary choice and access. Many specific recommendations for tailoring of program curriculum and delivery emerged from this project, including paying attention to the literacy level of materials; recognizing the high prevalence of barriers to participation (e.g., schedule, transportation, family needs); providing program supports to facilitate attendance (e.g., flexible program locations and timing [including make-up sessions], transportation assistance, child care); and using tailored, frequent contact by trained lifestyle coaches to encourage retention.

Lessons learned for replicability

The evaluation of the Demonstration provides insight into the timeline, implementation, and effectiveness of many important aspects of model design. Key considerations for replication based on this Demonstration include having a 6-month period for project planning, ensuring sufficient staff time and reimbursement systems in place at the MCO/CCO level, and identifying resources to cover start-up costs. Building a network of CDC-recognized organizations for program delivery includes considerations such as ease of initiating the program, ease of setting up a contract, capitalizing on the peer support inherent to in-person classes, capacity for billing and data reporting and exchange, and credibility with a community. This Demonstration did not test building a robust health care provider referral system, but that could be a priority for future initiatives. Similarly, it did not evaluate aspects of implementation of a claims-based reimbursement, though those mechanisms were piloted late in the timeline of the Demonstration. The Demonstration identified promising practices for efficient participant identification and recruitment, which can be replicated in other states where the MCOs/CCOs will have an active role in recruitment. Capacity at the CDC-recognized organization level is also a critical consideration. SMAs and MCOs/CCOs should anticipate CDC-recognized organizations' needs for technical assistance in their capacity for engagement with a regulated payer like Medicaid, and they can address those needs by conducting trainings or enlisting partners to support them.

Building on Demonstration findings through other CDC-funded mechanisms

The Demonstration represents only one piece of the CDC's Division of Diabetes Translation's (DDT) overall commitment to scaling and sustaining the National DPP for high-burden, high-risk populations with socioeconomic disadvantages or challenges. In Fiscal Year 2013 (FY13), DDT funded all 50 states and the District of Columbia (DC) to pursue work on Medicaid coverage for the National DPP lifestyle change program. In FY14, DDT funded 17 states and four large cities to start new CDC-recognized organizations and cover the enrollment costs for high-burden, high-risk populations. During FY17, DDT awarded a 5-year cooperative agreement to 10 national organizations to scale the National DPP in underserved areas and to strategically reach out to enroll priority populations, including racial and ethnic minority groups. Also in FY17, DDT financially supported CDC's 6|18 Initiative (www.cdc.gov/sixeighteen/index.html) to provide intensive technical assistance to eight states pursuing Medicaid coverage for the National DPP lifestyle change program. DDT will continue to fund this work

in FY18 for an additional eight states. DDT recently awarded new 5-year cooperative agreements to all 50 states and DC, which will further support the development of new CDC-recognized organizations to enroll and retain priority populations in the National DPP lifestyle change program as well as provide support for continued work to obtain Medicaid coverage for the program. Finally, DDT will continue to disseminate the findings of the Demonstration through a new project (Coverage 2.0) that will focus on states that have achieved the critical first step of securing Medicaid coverage and now need assistance with implementing the benefit. In keeping with its commitment to fully implementing the National DPP nationwide as a partnership of public and private organizations working to prevent or delay type 2 diabetes, CDC will continue to ensure that the results of the funded work are made available to all partners through multiple channels. And because socioeconomic disparities in the prevalence of type 2 diabetes are notable and increasing (Beckles & Chou, 2016; Brown et al., 2004; Centers for Disease Control and Prevention, 2017), it becomes imperative that access to and coverage of the National DPP lifestyle change program for all people with prediabetes is increased nationwide.

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