

1199SEIU DIABETES PREVENTION PROGRAM AT MOUNT SINAI BETH ISRAEL

FINAL EVALUATION REPORT
DECEMBER 2017



LABOR MANAGEMENT PROJECT

An employer and 1199SEIU partnership

TABLE OF CONTENTS

Acknowledgments.....	i
Executive Summary.....	ii
INTRODUCTION.....	1
PROGRAM DESCRIPTION	2
EVALUATION PURPOSE AND METHODS	6
PROCESS FINDINGS	9
PARTICIPANT OUTCOMES.....	20
POLICY AND ENVIRONMENTAL CHANGES AT MSBI	32
CONCLUSION AND LESSONS LEARNED	34
Appendix A: DPP Planning Committee Members.....	36
Appendix B: Lifestyle Coaches	36
Appendix C: DPP Curriculum	37



ACKNOWLEDGMENTS

THIS REPORT was produced by the 1199SEIU League Labor Management Project (LMP)'s Research Department. The pilot 1199SEIU Diabetes Prevention Program (DPP) at Mount Sinai Beth Israel (MSBI) was approved by the leadership of 1199SEIU United Healthcare Workers East, MSBI and the 1199SEIU Training and Employment Funds. We appreciate the guidance and support offered by our partners.

We would like to thank program participants for completing numerous surveys and participating in focus groups. We also thank the members of the DPP planning committee and lifestyle coaches for interviewing with us. We thank our Workplace and Community Health Program colleagues for their participation in evaluation planning, data collection, evaluation logistics and participation in interviews. Lastly, we would like to thank our technical partner, Quality and Technical Assistance Center of New York (QTAC-NY) at the University of Albany, for assistance with data management, along with data reporting to the Centers for Disease Control and Prevention.

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EXECUTIVE SUMMARY

INTRODUCTION

MORE THAN ONE IN THREE (38 percent of) U.S. adults¹ has prediabetes, suggesting that approximately 43,000 1199SEIU members in the metro New York area may have the condition.² Up to 70 percent of people with prediabetes will eventually develop diabetes.³ The Centers for Disease Control and Prevention (CDC)'s National Diabetes Prevention Program (NDPP) has been shown to reduce the risk of diabetes by nearly 60 percent through a 12-month, coach-led lifestyle intervention of diet, exercise and behavior modification that results in a modest 5 percent to 7 percent weight loss. Innovative program design and implementation were needed to provide 1199SEIU members with prediabetes access to the NDPP.

PROGRAM PURPOSE

Healthy, happy workers contribute more effectively to patient care. The Labor Management Project's Workplace and Community Health Program (WCHP) helps healthcare workers adopt healthy lifestyles and promotes work environments that support total worker health. As part of that mission and, in light of the prediabetes epidemic, the WCHP offered a worksite-based DPP program to the Mount Sinai system and 1199SEIU leadership who, in turn, agreed to pilot a program at Mount Sinai Beth Israel hospital (MSBI) in Manhattan. The program was named the **1199SEIU DPP at Mount Sinai Beth Israel**. For the sake of brevity, it will be referred to here as the "DPP."

PROGRAM ACTIVITIES, SETTING AND POPULATION SERVED

Stakeholders formed a DPP planning committee comprised of 1199SEIU leaders, MSBI management, LMP staff and 1199SEIU National Benefit Fund (NBF) staff to oversee program planning and implementation. The committee selected 10 people to be trained as lifestyle coaches, and aimed to enroll 100 MSBI employees in the program. All MSBI employees were eligible for the program, as long as they were overweight⁴ and met one of the following criteria:

- 1. Reported having a blood test that indicated prediabetes or a history of gestational diabetes; or**
- 2. Scored nine or higher on the CDC Prediabetes Screening Test.⁵**

1 Menke A, Casagrande S, Glass L, Cowie CC. Prevalence of and trends in diabetes among adults in the United States, 1988-2012. *JAMA*. 2015; 314(10): 1021-1029.

2 This estimate was calculated by multiplying the number of 1199SEIU members (114,000) reported in the National Benefit Fund's 2012 annual report by 38 percent (prediabetes prevalence).

3 Tabak AG, Herder C, Rathmann W et al. Prediabetes: A high-risk state for developing diabetes. *Lancet*. 2012 June 16: 379(9833); 2279-2290.

4 Employees who were not overweight were invited to audit the program. Auditors' attendance and weight data was not reported to the CDC.

5 CDC Prediabetes Screening Test. <https://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>.

The planning committee employed direct (e.g., onsite tabling, department visits) and indirect (e.g., email, posters) methods to recruit participants. Six cohorts were launched between October 2015 and June 2016. To encourage attendance, cohorts met at lunchtime and a healthy meal was provided.

One hundred fifty-three employees signed up for the DPP and, of those, 97 attended at least one session. In this report, we present data for the 80 participants who attended four or more sessions, which is the attendance threshold required to be included in data submitted to the CDC's Diabetes Prevention Recognition Program (DPRP).⁶

The program's two-year activity implementation timeline is presented below.

ES Figure 1: PROGRAM ACTIVITY IMPLEMENTATION TIMELINE

APRIL 2015	AUGUST 2015	AUGUST 2015 – MAY 2016	SEPTEMBER 2015	OCTOBER 2015 – JUNE 2016	JUNE 2017
DPP labor-management planning committee launches (meetings approximately bi-monthly)	Peer lifestyle coach (MSBI employees) recruitment at Union delegates' meetings and via flyer distribution (email and site posting)	Ongoing participant recruitment using direct (e.g., onsite visits) and indirect (e.g., email, posters) methods	Two-day QTAC-NY Lifestyle Coach training for eight MSBI employees and two WCHP field coordinators	Staggered launch of six cohorts (average size: 13)	Final planning committee meeting

⁶ The purpose of this program is "to recognize organizations that have demonstrated their ability to effectively deliver a proven type 2 diabetes prevention lifestyle intervention ... The DPRP assures the quality of recognized programs and provides standardized reporting on their performance." Centers for Disease Control and Prevention Diabetes Prevention Recognition Program: Standards and Operating Procedures. January 1, 2015. <https://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>.

EVALUATION PURPOSE AND METHODS

The evaluation had two primary objectives:

- 1) To assess the feasibility and effectiveness of implementing the DPP at a unionized hospital worksite; and**
- 2) To contribute to the body of knowledge regarding DPP implementation best practices.**

We used a mixed methods approach, collecting and analyzing quantitative (logs, surveys) and qualitative data (interviews, focus groups). Data collection methods are listed in the table below.

EVALUATION METHODS	
STAKEHOLDER GROUP	METHOD
Program Participants	<ul style="list-style-type: none">• Weight and physical activity tracking log• NDPP Eligibility Survey• NDPP Satisfaction Survey• Behavioral and attitudinal survey• Focus groups• Program drop-out interviews
Labor-Management Planning Committee	Interviews
Lifestyle Coaches	Interviews and survey



PROCESS FINDINGS

LABOR-MANAGEMENT RELATIONSHIP

- Early buy-in from labor and management leadership was critical to launching and sustaining the DPP.
- A well-functioning, collaborative labor-management planning committee was instrumental to successful program planning and implementation.

IMPLEMENTATION

- The program required dedicated staff for planning, implementation, oversight and evaluation. The lack of a wellness coordinator at MSBI slowed recruitment and resolution of implementation challenges.
- Frequent communication with Union and management partners was necessary for resolving logistical challenges.
- Recruitment proved to be more challenging than expected, and required a persistent and multi-pronged strategy through direct and indirect methods of recruitment. Direct methods such as department visits proved to be more effective than indirect methods such as posters and email.

PARTICIPANT ENROLLMENT, ATTENDANCE AND ENGAGEMENT

- Program enrollment was hindered by limiting classes to lunchtime and to certain days of the week.
- Regular attendance and retention was impacted by release time issues that were partly due to high workload on certain units/departments. Greater program buy-in from middle management may have facilitated attendance.
- Program enhancements promoted engagement and met participants' stated needs: bi-weekly sessions in months seven to 12, cooking demonstrations, a trip to the farmers' market, physical activity sessions and between-session outreach.
- Coach support provided to participants between sessions was effective in sustaining participant engagement and ensuring adherence to the lifestyle intervention.

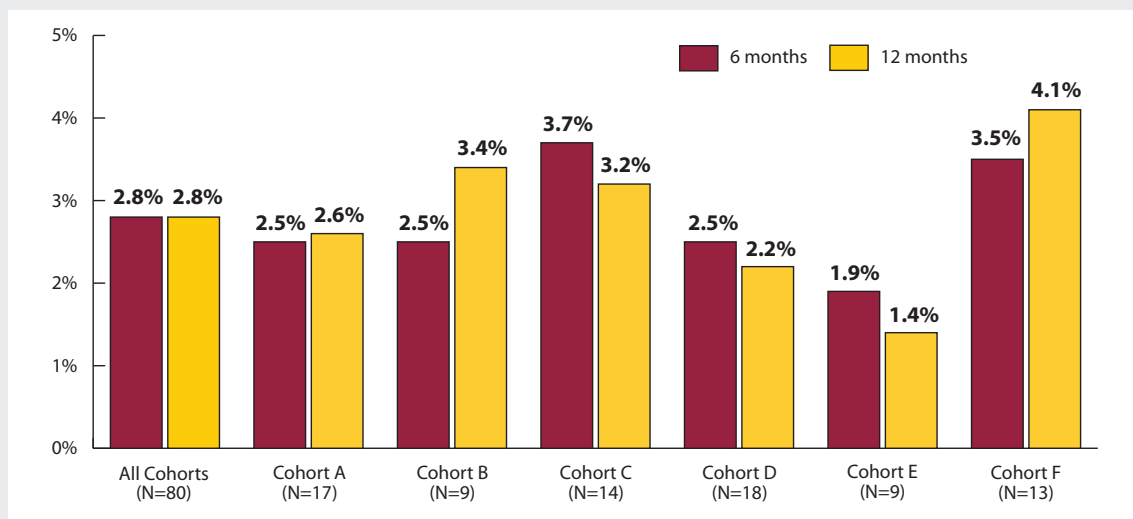
CULTURE OF WELLNESS

- Labor-management collaboration on the DPP laid the groundwork for developing a worksite wellness program. The DPP led to the formation of a subcommittee dedicated to fostering environmental and policy change to promote healthy eating and physical activity among all MSBI employees. In concert, the planning committee and subcommittee created the will and momentum to launch a full-fledged, co-led labor-management wellness committee.

PARTICIPANT OUTCOMES

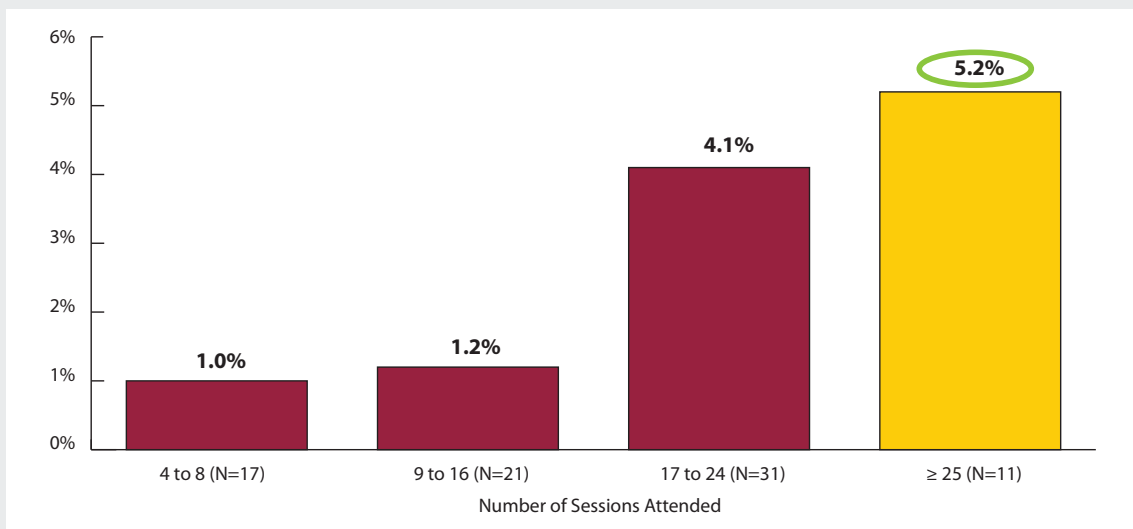
- The majority (75 percent) of DPP participants achieved some weight loss, thereby reducing their risk of developing diabetes.
- Average weight loss was 2.8 percent for all cohorts combined (**ES Figure 2**). Twenty-five percent of participants met the CDC target of at least 5 percent weight loss.

ES Figure 2: AVERAGE PERCENT WEIGHT LOSS



- As in studies published in the literature,⁷ greater attendance was associated with better weight-loss outcomes (**ES Figure 3**).
- Participants identified coach and classmate support and encouragement, alongside nutrition and physical activity education, as factors contributing to their success.
- “Wellness Champions” emerged and served as proponents of the program. They also played an integral role in ramping up participant recruitment by making several referrals to the DPP.

ES Figure 3: AVERAGE PERCENT WEIGHT LOSS by NUMBER OF SESSIONS ATTENDED



⁷ Ely et al (2017).

INTRODUCTION

THE GROWING EPIDEMIC OF PREDIABETES⁸ in the United States is well-documented. More than one in three (38 percent of) adults⁹ has prediabetes, which suggests that approximately 43,000 1199SEIU members in the metro New York area may have the condition.¹⁰ Up to 70 percent of people with prediabetes will eventually develop diabetes.¹¹

Risk factors for prediabetes and diabetes include age, overweight/obesity, physical inactivity, a history of gestational diabetes and a family history of diabetes. Diabetes risk is also greater among minorities. In New York City, the prevalence of diabetes is disproportionately higher among non-Hispanic Blacks (15 percent) and Latinos (17 percent) than among Whites (6.7 percent).¹² It is estimated that similar disproportionately high rates of diabetes may be present among 1199SEIU healthcare workers, many of whom are Black and Latino.

Diabetes prevention is imperative: diabetes complications include cardiovascular disease, renal disease, visual impairment and amputation. The Diabetes Prevention Program Research Group found that losing a modest 5 percent to 7 percent of one's body weight, accompanied by regular exercise, can decrease diabetes risk substantially.¹³ In the group's original study, a 12-month, coach-led lifestyle intervention of diet, exercise and behavior modification reduced the risk of diabetes among overweight prediabetic adults by 58 percent over a three-year follow-up period. Lifestyle intervention was more effective than prescription medication (metformin). In light of these impressive findings, Congress passed the Diabetes Prevention Act of 2009, authorizing the Centers for Disease Control and Prevention (CDC) to establish the National Diabetes Prevention Program (NDPP) to disseminate lifestyle intervention through local community organizations across the country.¹⁴ In 2017, about 1,400 organizations in the U.S. deployed the Diabetes Prevention Program (DPP) in community settings. Several companies now offer online DPP programs with coaching.

8 Prediabetes is defined as blood glucose levels that are higher than normal but below the threshold for diabetes. The American Diabetes Association formally defines prediabetes as an A1C of 5.7 percent to 6.4 percent; fasting plasma glucose of 100 mg/dl to 125 mg/dl; or glucose levels of 140 mg/dl to 199 mg/dl after an oral glucose tolerance test.

9 Menke A, Casagrande S, Glass L, Cowie CC. Prevalence of and trends in diabetes among adults in the United States, 1988-2012. *JAMA*. 2015; 314(10): 1021-1029.

10 This estimate was calculated by multiplying the number of 1199SEIU members (114,000) reported in the National Benefit Fund's 2012 annual report by 38 percent (prediabetes prevalence).

11 Tabak AG, Herder C, Rathmann W et al. Prediabetes: A high-risk state for developing diabetes. *Lancet*. 2012 June 16: 379(9833); 2279-2290.

12 New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - Community Health Survey 2015. Accessed May 5, 2017. <http://nyc.gov/health/epiquery>.

13 Knowler WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, Nathan DM; Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med*. 2002 Feb 7; 346(6):393-403.

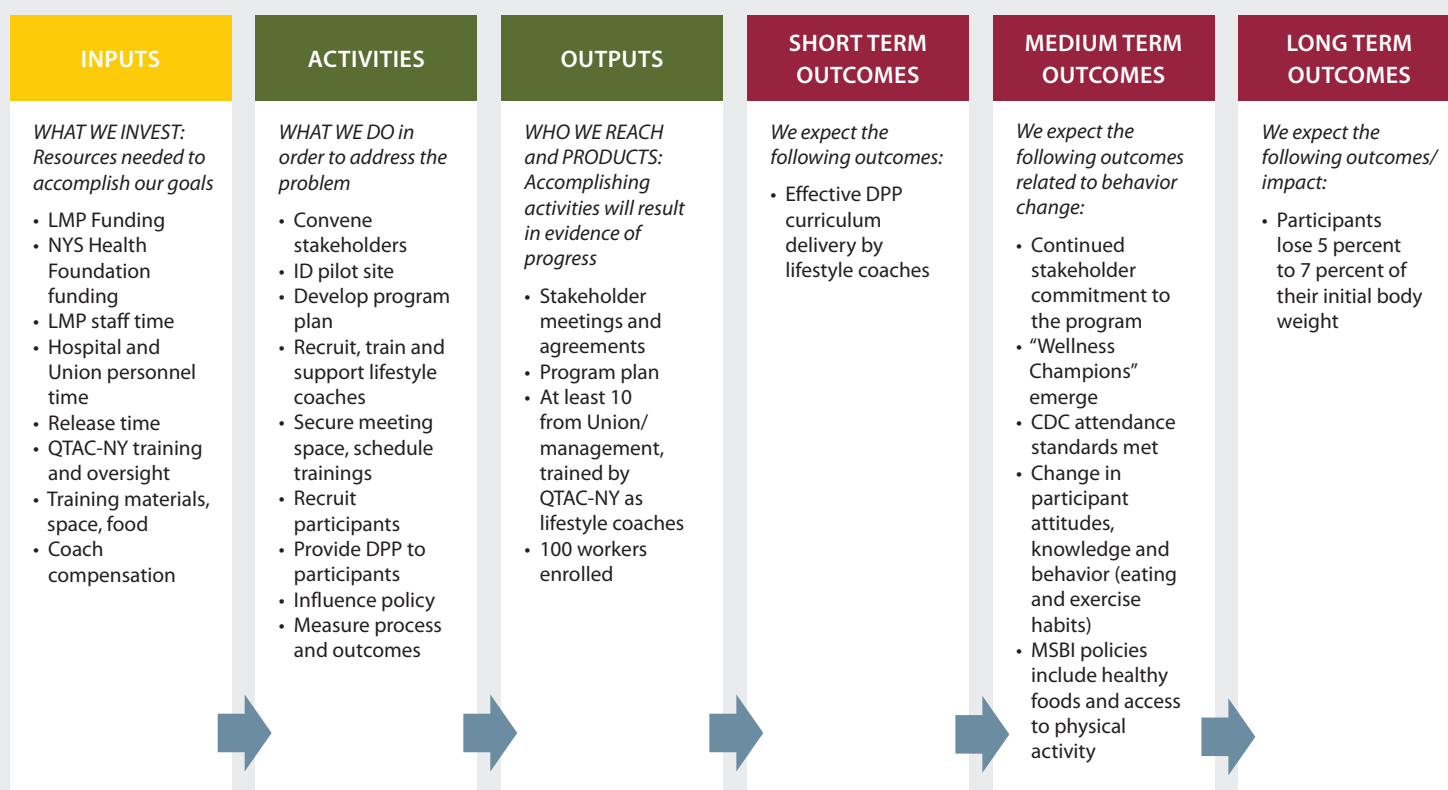
14 HR 4124. Diabetes Prevention Act of 2009. <https://www.congress.gov/bill/111th-congress/house-bill/4124>. Accessed May 8, 2014.

PROGRAM DESCRIPTION

IN 2015, THE LABOR MANAGEMENT PROJECT (LMP) established a Workplace and Community Health Program (WCHP) to support the development of state-of-the-art workplace wellness programs at 1199SEIU worksites. As part of that mission and in light of the prediabetes epidemic, the WCHP offered a worksite-based program to the Mount Sinai healthcare system and 1199SEIU leadership who, in turn, agreed to pilot a program at Mount Sinai Beth Israel (MSBI) in Manhattan. MSBI was selected because it is “wall-to-wall,” meaning that both RNs and ancillary staff are 1199SEIU members, and because it has an active delegate body. Stakeholders formed a planning committee comprised of 1199SEIU leadership, MSBI management, LMP staff and 1199SEIU National Benefit Fund (NBF) staff to oversee program planning and implementation (see **Appendix A**). The program was named the **1199SEIU DPP at Mount Sinai Beth Israel**. For the sake of brevity, it will be referred to as the “DPP” throughout this report.

Figure 1 shows a logic model for the DPP inclusive of required resources (inputs), program activities, outputs and outcomes. Funding for the program came from the LMP and a grant from the New York State Health Foundation. The WCHP contracted with the University of Albany’s Quality and Technical

FIGURE 1: PROGRAM LOGIC MODEL



Assistance Center (QTAC-NY) to train lifestyle coaches, to provide an online data-management tool (Compass) for tracking participant attendance, weight and physical activity, and to report program data to the CDC’s Diabetes Prevention Recognition Program (DPRP).¹⁵

LIFESTYLE COACHES

The DPP planning committee selected 10 people to be trained as lifestyle coaches—eight MSBI employees and the WCHP’s two field coordinators. The design used peer coaches in the interest of program sustainability and with the expectation that they could effectively motivate their colleagues. Resources required to support coaches, along with coaching responsibilities are detailed in **Table 1**.

TABLE 1: COACH RESOURCES AND RESPONSIBILITIES	
TRAINING	<ul style="list-style-type: none"> • Two-day training provided by QTAC-NY • Ongoing oversight provided by the WCHP
RELEASE TIME	MSBI provided: <ul style="list-style-type: none"> • One day for training (the second day was unpaid) • One hour per DPP class <ul style="list-style-type: none"> –Months one through six: 16 classes –Months seven through 12: six to 15 classes
COMPENSATION	<ul style="list-style-type: none"> • Months one through six: Paid for three hours per session (one hour each for preparation, delivery and follow-up) • Months seven through 12: Paid for two hours per session (pay was lowered, as there were fewer participants to follow-up with in the post-core period)
RESPONSIBILITIES	<ul style="list-style-type: none"> • Deliver the National Diabetes Prevention Program • Provide information and support to participants • Create accountability and a sense of commitment within the group • Work with participants to identify barriers to a healthy lifestyle and find solutions to those barriers • Establish strategies with each participant to reach goals and monitor progress towards those goals • Leverage group dynamics, serve as a facilitator and promote group discussion and interaction • Collect and record weight and physical activity data at each session

¹⁵ The purpose of this program is “to recognize organizations that have demonstrated their ability to effectively deliver a proven type 2 diabetes prevention lifestyle intervention ... The DPRP assures the quality of recognized programs and provides standardized reporting on their performance.” Centers for Disease Control and Prevention Diabetes Prevention Recognition Program: Standards and Operating Procedures. January 1, 2015. <https://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>.

PROGRAM ELIGIBILITY

The committee aimed to launch a cohort of 15 to 20 participants once a month until the recruitment target of 100 MSBI employees was met. To be eligible, employees had to be overweight¹⁶ and had to meet one of the following criteria:

1. Reported having a blood test that indicated prediabetes or a history of gestational diabetes; or
2. Scored nine or higher on the CDC Prediabetes Screening Test¹⁷

The program was open to union and non-union employees to ensure seamlessness.

TABLE 2: CDC PROGRAM REQUIREMENTS¹⁸

CDC STANDARD	REQUIREMENT
INTERVENTION DURATION	One year
INTERVENTION INTENSITY	<ul style="list-style-type: none">• Minimum of 16 sessions, delivered approximately once per week during months one through six (Core phase of program)• Minimum of six sessions, delivered at least once per month, in months seven through 12 (Post-core phase of program)
ATTENDANCE	<ul style="list-style-type: none">• Minimum of nine sessions attended, on average, during months one through six (Core phase)• Minimum of three sessions attended, on average, during months seven through 12 (Post-core phase)
DOCUMENTATION OF BODY WEIGHT	On average, participants must have had body weights recorded at a minimum of 80 percent of sessions attended
DOCUMENTATION OF PHYSICAL ACTIVITY	On average, participants must have had physical activity minutes recorded at a minimum of 60 percent of all sessions attended
WEIGHT LOSS ACHIEVED	Average weight loss achieved by participants attending a minimum of four sessions must be a minimum of five percent of “starting” body weight (at both six months and 12 months)

¹⁶ Employees who were not overweight were invited to audit the program. Auditors' data was not reported to the CDC.

¹⁷ CDC Prediabetes Screening Test. <https://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>.

¹⁸ Table adapted from the CDC DPRP Standards and Operating Procedures. <https://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>.

PROGRAM LOCATION, TIMING AND MEALS

Six cohorts (A through F) were launched onsite at MSBI between October 2015 and June 2016—four at the Petrie division (inpatient) and two at Mount Sinai Downtown at Union Square (ambulatory). Providing classes at both sites ensured accessibility to a larger number of MSBI employees. To encourage attendance, cohorts met at lunchtime; MSBI allowed employees to use a half hour of paid break time and a half hour of unpaid lunch time to attend. Additionally, the LMP paid for a healthy meal, which was initially provided by MSBI, and then by an outside vendor when the hospital's catering policies changed.

CDC PROGRAM GUIDELINES

As per CDC guidelines, the one-year program consisted of 16 core sessions in the first half of the year and at least six post-core sessions in the second half. Each session was one hour long. For participants who missed sessions, coaches provided make-up core classes by phone within one week. The WCHP and coaches aimed to meet CDC intervention, documentation, attendance and weight-loss requirements—detailed in **Table 2**.

NDPP CURRICULUM

The NDPP curriculum emphasizes self-monitoring of diet and exercise, enhancing self efficacy, building social support, and employing problem-solving strategies for overcoming barriers to success.¹⁹ Self-monitoring encompasses logging food and fat gram intake, along with tracking weekly physical activity minutes. The curriculum recommends at least 150 minutes of moderate physical activity per week and limiting fat intake to a designated amount of grams, depending on starting body weight. Lastly, the curriculum emphasizes adopting lasting lifestyle changes, as opposed to focusing on short-term weight loss.

The CDC introduced a revised curriculum, Prevent T2, in March 2016, to reflect new research on diet and exercise. Importantly, the focus of the curriculum shifted from tracking fat gram intake to caloric intake. The WCHP adopted Prevent T2 with the three cohorts that launched after its introduction. A full list of DPP curriculum topics can be found in **Appendix B**.

¹⁹ National Diabetes Prevention Program. Curricula and Handouts. <https://www.cdc.gov/diabetes/prevention/lifestyle-program/curriculum.html>. Accessed May 8, 2017.

EVALUATION PURPOSE AND METHODS

EVALUATION PURPOSE

The evaluation had two primary objectives:

- 1) To assess the feasibility and effectiveness of implementing the DPP at a unionized hospital worksite. Researchers have examined DPP implementation at worksites, such as a university²⁰ and a transportation company,²¹ but to the best of our knowledge, none have studied the DPP in a hospital workplace setting.
- 2) To contribute to the body of knowledge regarding DPP implementation best practices.

TABLE 3: EVALUATION METHODS

METHOD	FREQUENCY	SAMPLE
Participant sign-in sheet	Each session	All participants
Weight and physical activity tracking log	Each session	All participants
NDPP Participant Eligibility Survey	Once (at session one)	All participants
NDPP Participant Satisfaction Survey	Twice 1. Six months (midpoint) 2. 12 months (endline)	All available participants
Modified New York Academy of Medicine (NYAM) behavioral and attitudinal survey	Three times 1. Session one (baseline) 2. Six months (midpoint) 3. 12 months (endline)	Participants in cohorts D, E and F Baseline (N=40) Midpoint (N=29) Endline (N=21)
Drop-out/non-participant interviews	Once	Drop-outs (N=9) Non-participants (N=11)
Participant focus groups	Once (either at six months or 12 months) ²²	All available participants (N=40)
Planning committee interviews	Once (at program midpoint)	Union (N=4) MSBI (N=3) LMP/WCHP (N=5)
Coach interviews and mini-survey	Once (at six months)	N=8 ²³

20 Weingold KR, Miller CK, Marrero DG, Nagaraja HN, Focht BC, Gascon GM. A randomized controlled trial translating the Diabetes Prevention Program to a university worksite, Ohio, 2012-2014. *Prev Chronic Dis*. 2015; 12.

21 Wilson MG, DeJoy DM, Vandenberg R, Padilla H, Davis M. FUEL your life: a translation of the Diabetes Prevention Program to worksites. *Am J Health Promot*. 2016; 30(3):188-197.

22 With the first two cohorts, we fielded focus groups at the end of the one-year program. Due to program drop-out, few participants attended those groups. Therefore, focus groups met with subsequent cohorts at the end of six (6) months.

23 Although 10 coaches were trained, only eight were needed to deliver the program to the six cohorts.

EVALUATION FOCUS

The evaluation focused on both process and outcomes. For the process evaluation, we examined program oversight, project management, implementation and participant satisfaction. For outcomes, we were primarily interested in weight change over time, and physical activity level. At the organizational level, we examined wellness policy and environmental changes at MSBI.

To expand the inquiry, we surveyed participants in the last three cohorts regarding perceived health status, eating and exercise habits, barriers to healthy eating and physical activity, and their perceptions of MSBI's support of employee wellness.

EVALUATION METHODS

We used a mixed-methods approach, collecting and analyzing quantitative (logs, surveys) and qualitative data (interviews, focus groups). All data collection methods are listed in **Table 3**, while evaluation questions are in **Table 4**.

TABLE 4: CDC PROGRAM REQUIREMENTS	
PROCESS EVALUATION	OUTCOMES EVALUATION
How was the program structure (e.g., planning committee; program coordination) established? What worked well, and why? How could the structure have been improved?	To what extent did participants meet weight-loss standards?
How was the program promoted and participants recruited? What worked well, and why? How could the process have been improved?	To what extent did participants meet physical activity standards?
What worked well about program implementation, and why? How could have implementation been improved?	<ul style="list-style-type: none">• To what extent did participants make dietary and physical activity changes?• To what extent did participants' knowledge and attitudes change?
How satisfied were participants with the overall program, the curriculum and the coaches?	Did the program develop "Wellness Champions" who had personal success with weight loss and promoted the program? What was their role and what did they do?
To what extent did cohorts meet attendance standards? What were some of the barriers to attendance and engagement?	To what extent did the DPP advance a broader culture of wellness at the pilot facility?

Coaches weighed participants and documented weight and self-reported physical activity minutes in a log at each session. Sign-in sheets were used to track attendance. A field coordinator then entered weight, attendance and physical activity data into the QTAC-NY database, using Compass, on a weekly basis. We analyzed weight and attendance on a bi-weekly basis to assess participant progress.

The NDPP Eligibility Survey and NDPP Participant Satisfaction Survey are required by the CDC. The latter assesses participant satisfaction with coaches, workshop materials and support provided by other participants. It also gauges participants' motivation to take care of their health and their understanding of lifestyle change, among other variables. The behavioral and attitudinal survey administered to the last three cohorts was a modified version of a survey developed by the New York Academy of Medicine (NYAM).²⁴ We administered this survey, which includes questions about perceived health status, exercise participation, and soda, fruit and vegetable, and high-fat food consumption, three times to measure change over time.

We obtained data about program planning, implementation and program satisfaction through interviews with planning committee members, interviews with lifestyle coaches and participant focus groups. To understand why some participants dropped out, we interviewed participants who left the program prematurely. Lastly, to understand barriers to program enrollment, we spoke to individuals who signed up for the program but did not enroll (non-participants). We conducted interviews in person or by phone, depending on convenience for the respondent.

METHODOLOGICAL LIMITATIONS

There are several limitations to the evaluation methodology. First, due to resource and logistical constraints, we did not measure biomarkers such as HbA1C, an indicator of average blood glucose levels over three months and a tool for diagnosing and monitoring prediabetes and diabetes. Second, we did not measure program cost-effectiveness or return on investment—because this was a pilot that accessed significant outside resources, these metrics would not be useful for employers wishing to duplicate the initiative. Third, a relatively small number of participants completed surveys at 12 months, as many had left the program or were absent during the last class. Moreover, the adapted NYAM survey was only administered to three of the six cohorts. Fourth, we did not track coach activities (e.g., frequency of contact with participants between sessions) that were qualitatively found to impact participant engagement. Lastly, the participant physical activity analysis was hampered by missing data. Many participants simply did not track their activity, citing that the task was too burdensome.

²⁴ Used with permission of the NYAM.

PROCESS FINDINGS

PROGRAM OVERSIGHT AND COORDINATION

MEETINGS AND COMMUNICATION

The DPP planning committee met 12 times between April 2015 and June 2017, with three meetings occurring before the launch of the first workshop (Cohort A) in October 2015. Once Cohort A was underway, the committee met bi-monthly.

Although there were challenges with scheduling meetings due to members' competing demands, Union and management participation was consistent. At least two 1199SEIU and two MSBI management representatives attended each meeting.

All Union and management committee members cited being generally satisfied with committee functioning. Meetings had a clear agenda, and implementation challenges were addressed, with potential solutions identified, discussed and agreed upon.

INVOLVEMENT AND COMMITMENT

High-level executives from both sides were involved in early program planning; having their "stamp of approval" provided the momentum needed to successfully launch the program, according to one planning committee member.

MSBI management committed to providing one half-hour of paid break time per participant, per session. In addition, coaches received one day of paid time to attend a two-day coach training and one hour of release time per session.

LABOR-MANAGEMENT COLLABORATION

Union and management uniformly perceived the DPP as an "uncontroversial" initiative that both could easily support and collaborate on.

Representatives from 1199SEIU and management understood the importance of joint work and their counterpart's contributions to successful program implementation. Both parties reported that the labor-management relationship was respectful. WCHP planning committee members noted that the committee fostered a robust working relationship between Union and management, paving the way for joint work on further wellness initiatives at MSBI.

“

The DPP would not have been as successful without the Union on board. It was very wise to have Union staff, because it is important for labor and management to work together. We would not have otherwise gotten as much Union participation.

—MSBI Committee Member

”

An 1199SEIU committee member praised MSBI's Human Resources department for being "very helpful" and "exceptional" in working on getting employees released from their work duties to attend the program. An MSBI committee member recognized that 1199SEIU involvement in the DPP was essential to the recruitment of Union members:

"The DPP would not have been as successful without the Union on board. It was very wise to have Union staff, because it is important for labor and management to work together. We would not have otherwise gotten as much Union participation."

PROGRAM LOGISTICS AND COORDINATION

The LMP's WCHP coordinated day-to-day implementation, including participant recruitment, screening, scheduling, material preparation, coach oversight, programming, participant outreach, meal ordering, data management and liaising with the program's technical partner, QTAC-NY. The WCHP scheduled weekly calls with Union and management partners to provide implementation updates and to troubleshoot logistical problems. If calls could not take place due to scheduling conflicts, the WCHP provided updates to Union and management stakeholders via email. Both parties expressed appreciation for the WCHP's frequent communication and receptivity to input. Moreover, labor and management praised the WCHP for being timely, persistent and assertive in implementation and coordination efforts, particularly with regard to recruitment:

"I think the [LMP] program manager drove the project extremely well ... She was aggressive in making sure that all the gaps were closed and that we were looking at every option for recruiting participants and making sure that we were well-informed, even if we couldn't come to a meeting. We were still part of the discussion and decision."

– 1199SEIU Planning Committee Member

"I think the LMP did very well. They are very calm and well-organized. They wisely scheduled recurring meetings to keep everyone on the same page ... I think the resources to help recruit people and to create promotional material was very important."

– MSBI Planning Committee Member

Many planning committee members reported that program implementation and coordination was labor-intensive. Lacking an onsite wellness coordinator, an MSBI manager acknowledged that the hospital and Union could not have executed the program without the considerable support of the WCHP:

"The DPP is too much of a lift for the hospital and the organizers to do alone. We really needed dedicated staff to help create and manage the program."

– MSBI Planning Committee Member

Implementation challenges, particularly around recruitment and release time, may have been abated with a dedicated wellness hospital representative, such as a paid wellness coordinator, to take ownership of the program.

COACH RECRUITMENT, TRAINING AND SUPPORT

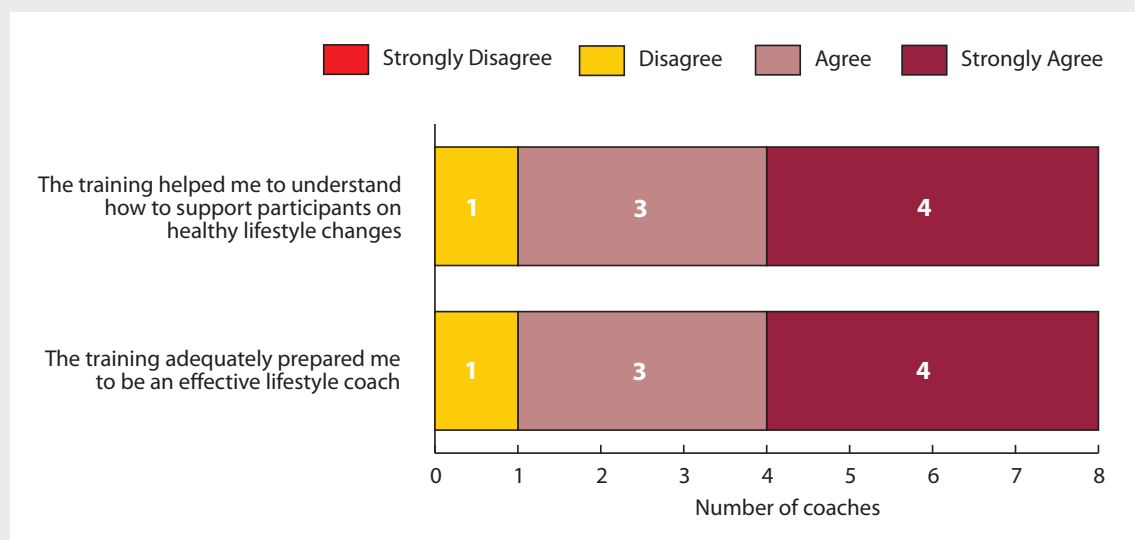
RECRUITMENT

The planning committee recruited lifestyle coaches through visits to Union delegates' meetings and via a recruitment flyer that management emailed to all employees and posted in the Employee Relations office. In addition to two WCHP field coordinators, QTAC-NY trained eight MSBI employees to deliver the DPP curriculum. Of the 10 people trained, two WCHP and six MSBI staff had the opportunity to co-lead a DPP cohort (**Appendix C**).

TRAINING

We administered a brief survey to coaches during interviews to assess perceptions of the QTAC-NY training. As can be seen in **Figure 2**, seven out of eight coaches "agreed" or "strongly agreed" that the training adequately prepared them to be an effective coach, and helped them understand how to support participants on healthy lifestyle changes.

FIGURE 2: LIFESTYLE COACH PERCEPTIONS OF QTAC-NY COACH TRAINING (N=8)



Coaches found various aspects of the training to be useful. More than half identified the teach-back as one of its most helpful components, because it offered an opportunity to practice leading a workshop and to receive feedback from peers. Other useful aspects of the training included instruction on how to facilitate discussion, how to help participants manage challenges (e.g., environmental cues) and how to foster motivation to change.

SUPPORT

Coaches expressed a high level of satisfaction with the support and resources provided by the WCHP, with all six MSBI coaches agreeing or strongly agreeing that the WCHP provided adequate support and resources. Coaches praised the WCHP for frequent communication and quick response to questions and requests for help:

"Their [WCHP] feedback was very helpful. We communicated with each other thoroughly. They were very supportive and always right there with anything we needed."

The WCHP's senior manager and field coordinators would periodically observe classes and provide feedback to coaches, a practice that some found useful:

"They even came to our class to see what was going on and they were really encouraging and motivating. They shared what was good, but at the same time suggested where I could do better. So that was all helpful."

In five out of six cohorts, MSBI coaches were paired with one from the WCHP, a practice that fostered communication and accountability, and ensured that participants received adequate support throughout the program. Pairing two MSBI coaches, as in Cohort E, was a less-effective approach. Shortly after Cohort E launched, WCHP staff found that its coaches needed extra support because it had been about one year since the QTAC-NY coach training. To provide Cohort E coaches with additional guidance, a WCHP field coordinator (trained as a lifestyle coach) observed sessions, and provided feedback and suggestions as needed. Ultimately, one of the MSBI coaches resigned because of conflicting demands, at which point the field coordinator stepped in to fill the void. Despite reporting high levels of satisfaction with their training and WCHP support, coaches made several suggestions for improvement, shown in **Table 5**.

TABLE 5: COACH TRAINING AND SUPPORT IMPROVEMENT IDEAS	
CATEGORY	SUGGESTION
GENERAL	<ul style="list-style-type: none">• Extend the training to three days• Provide a forum for coaches to share experiences and best practices, get advice and offer each other support
CURRICULUM	<ul style="list-style-type: none">• Tutorials on the new T2 DPP curriculum
COACHING TECHNIQUES	<ul style="list-style-type: none">• Allow trainees to observe a master coach leading a session• Teach strategies to help participants meet the physical activity requirement• Teach motivational techniques to help participants who relapse into old habits, using real-life scenarios• Provide more in-depth instruction on how to teach participants about counting calories and fat grams, and tracking food intake
RESOURCES	<ul style="list-style-type: none">• Provide books and articles about coaching• Provide exercise equipment (e.g., weights)• Provide tools for demonstrating how to measure portions (e.g., measuring cups, scale)

PARTICIPANT RECRUITMENT

MSBI employees were recruited for the DPP using a number of direct (onsite visits, participant referrals) and indirect (e.g., email, posters, flyers) methods (**Table 6**). In total, 153 employees signed up for the program, meaning that they provided their name and contact information on a sign-up sheet and expressed an intention to participate. Direct strategies accounted for nearly 78 percent of program sign-ups. WCHP onsite outreach, which included departmental visits and tabling in the hospital lobby, was the most productive specific recruitment method (53.6 percent), followed by recruitment emails from MSBI management (21.2 percent). Management emails were effective at spurring interest in early cohorts, but were less useful later in the program.

The WCHP leveraged 1199SEIU staff, MSBI employees and DPP participants from earlier cohorts to recruit for the program. An 1199SEIU planning committee member identified a nurse at Mount Sinai Downtown Union Square, and requested her help with recruitment. This nurse visited various departments to promote the program, a strategy that yielded nine percent of program sign-ups. In addition, the Union solicited other members for recruitment assistance, but those efforts did not yield results.

A video featuring participant testimonials and a promotional poster proved relatively ineffective as recruitment tools. Although the video was well-received by the planning committee, it was not widely disseminated by Union and management partners and, consequently, did not impact recruitment. The poster may have had limited impact because it was relatively small and was placed only in the hospital lobby, an area not always traversed by employees during their work shifts.

Recruitment was time-consuming, and proved more difficult than planning committee members had anticipated; several reported that recruitment was, in fact, the most challenging aspect of implementation.

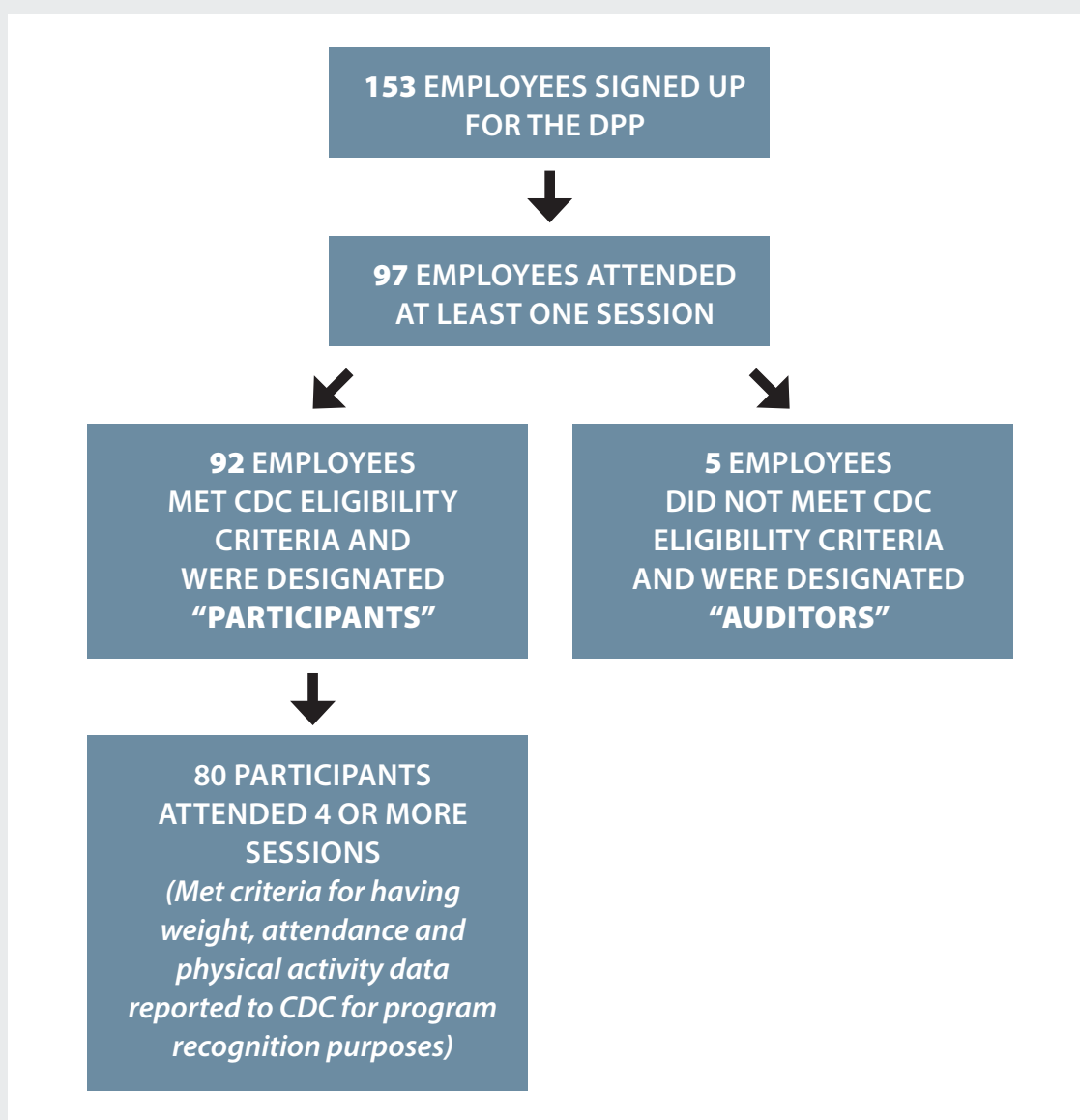
TABLE 6: RECRUITMENT METHODS

TYPE OF METHOD	PERCENTAGE OF PROGRAM SIGN-UPS (N=153)
DIRECT (Total)	77.5%
• LMP Onsite Outreach (Dept. Visits, Tabling)	53.6%
• Participant or Employee Referrals	11.9%
• Nurse Ambassador (referred by the Union)	8.6%
• Lifestyle Coach Referral	2.0%
• Union Staff Referral	1.3%
INDIRECT (Total)	22.5%
• Management Email	21.2%
• Poster or Flyer	1.3%

PARTICIPANT ENROLLMENT AND CHARACTERISTICS

Of the 153 MSBI employees who signed up for the DPP, 97 (63 percent) attended at least one session (**Figure 3**). Out of those who attended a minimum of one session, 92 (95 percent) met CDC eligibility criteria. The remaining five individuals who did not meet criteria were designated as auditors and continued in the program; we did not report their data to the CDC. Eighty (52 percent) of the 153 individuals who signed up for the program attended four or more sessions. This report presents data for only these 80 participants, because the CDC's Recognition Program considers weight, attendance and physical activity data only for individuals who meet the attendance threshold

FIGURE 3: FLOWCHART OF PROGRAM PARTICIPATION



DPP participant characteristics are shown in **Table 7**. Participants were mostly female (85.0 percent), 1199SEIU members (77.2 percent), middle-aged (65.2 percent), and non-Hispanic African American (47.5 percent) or Hispanic/Latino (32.5 percent). A broad range of MSBI departments were represented.

TABLE 7: CHARACTERISTICS OF PARTICIPANTS ENROLLED IN THE DPP

Gender (N=80)	
• Female	85.0%
• Male	15.0%
Age group (N=69)	
• 18–44 years	33.3%
• 45–64 years	65.2%
• 65 and older	1.3%
Average age (N=69)	47.2 years
Race/Ethnicity (N=80)	
• Non-Hispanic Black or African American	47.5%
• Hispanic/Latino	32.5%
• Non-Hispanic White or Caucasian	7.5%
• Asian or Asian American	7.5%
• Other	3.8%
• Native American or Alaska Native	1.3%
Affiliation (N=79)	
• Union	77.2%
• Management	22.8%
Department (N=77)	
• Specialties	23.4%
• Imaging	16.9%
• Administrative	14.3%
• Medicine	7.8%
• Behavioral Health	7.8%
• Environmental Services	5.2%
• Transport	5.2%
• Nursing	5.2%
• Engineering	2.6%
• ICU	2.6%
• Surgery	2.6%
• Therapies	2.6%
• Other	3.9%

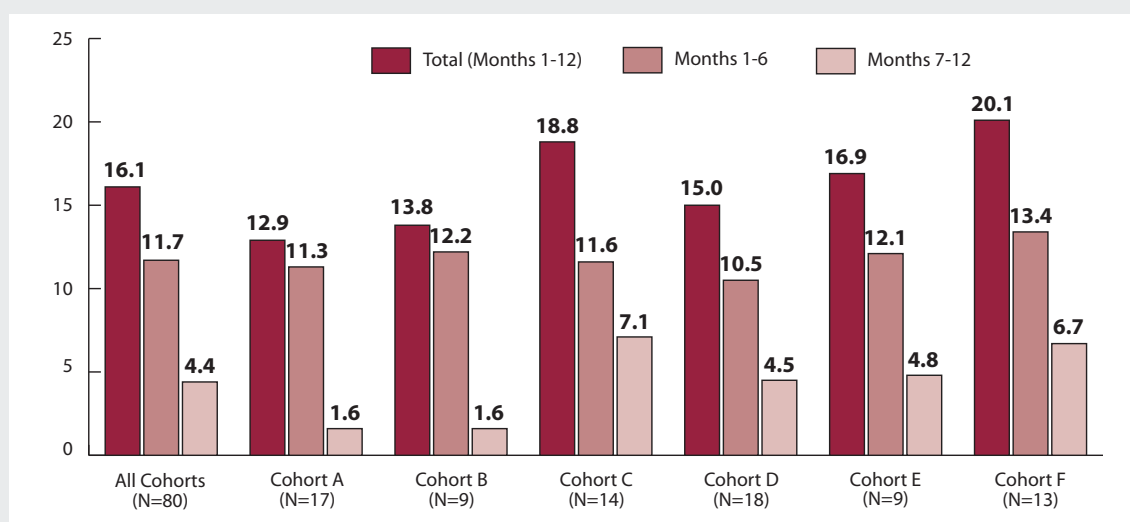


PARTICIPANT ATTENDANCE AND RETENTION

To encourage attendance, the WCHP sent reminder texts to DPP participants one day before their scheduled session. Additionally, WCHP lifestyle coaches made robust and continuous efforts to support and retain participants, particularly those who missed sessions, by communicating with them via phone calls, texts and emails. If someone missed consecutive sessions, coaches made repeated attempts to reengage them. Most MSBI coaches did not follow up with participants between sessions, citing a lack of time and heavy workload.

As shown in **Figure 4**, all six cohorts met the CDC attendance standard of an average of nine or more sessions attended during the first six months of the program. Four of the six cohorts met the standard of an average of three or more sessions attended during the second half of the program. Cohorts C and F achieved the highest average attendance over the course of the 12-month prevention period. It is likely that Cohorts A and B were unable to reach attendance standards in months seven through 12 because those groups only had six sessions scheduled during the post-core phase of the program. Due to participant request, post-core session frequency was increased to biweekly for cohorts C through F, enabling those groups to achieve standard.

FIGURE 4: AVERAGE NUMBER OF SESSIONS ATTENDED



I've lost a good fifteen pounds and I feel great.

—DPP Participant

PROGRAM DROP-OUT AND NON-PARTICIPATION

Although most attendance standards were met, drop-out and non-participation were issues. More than a third (37 percent) of employees who signed up for the program did not attend even one session. Of the 92 participants²⁵ who attended one or more sessions, 17 (18 percent) withdrew before completing nine sessions in the core phase of the program.

To get an understanding of factors contributing to non-participation or drop-out, we interviewed 11 individuals who signed up for the program but did not attend (non-participants), and nine who left the program prematurely (drop-outs). Non-participants provided various reasons for not attending:

- Did not work on the days (Tuesdays, Wednesdays, Thursdays) that the DPP was offered
- A lunchtime program was not aligned with the timing of their shift (e.g., 11:00 am to 7:00 pm; 3:00 pm to 11:00 pm; overnight)
- Did not receive notice from the program about a start date
- Medical problems

Employees who dropped out of the program and their coaches cited the following reasons for leaving the program:

- Inability to attend due to a heavy workload
- Release barriers
- Relocation to a different work site
- Needing time for other personal priorities
- Curriculum was “too basic,” covering familiar topics

A representative from Human Resources worked diligently to resolve release issues but, given the imperative to maintain safe staffing and to provide excellent patient care, some participants were periodically not released to attend sessions. The WCHP’s senior manager noted, “It may have been useful to have an informational session specifically for managers and supervisors, to get their buy-in prior to launching the cohorts.” Senior management at MSBI sought to gain middle-management support in their leadership operations meeting, and this proved to ease release-time obstacles for some participants.

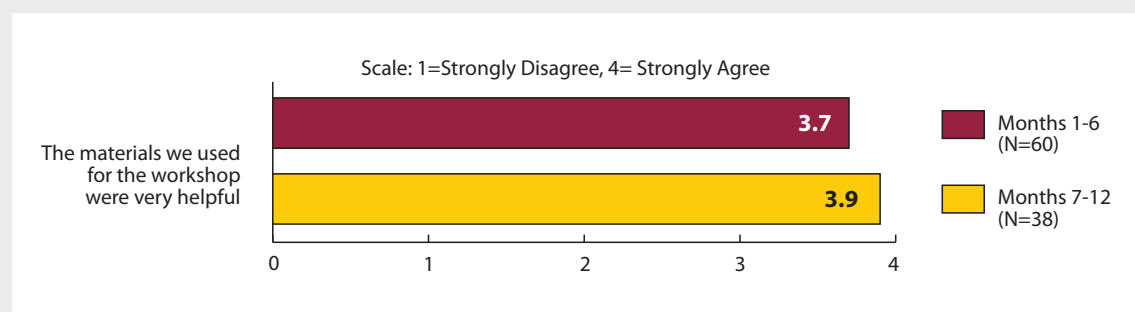
Even though some employees left or did not join the program due to work schedule incompatibility, many who stayed in the program reported that having a DPP at work was highly convenient, thereby promoting attendance. For some participants, a work-based program was perceived as more convenient than one near their home. These participants cited family and caregiver responsibilities as significant barriers to attending a community program after work or on days off. Some work second jobs and would find it impossible to participate in a wellness program outside of work.

²⁵ The five auditors are excluded from this calculation.

CURRICULUM

The WCHP employed the CDC's DPP curriculum, providing the original version to the first three cohorts, and the revised T2 curriculum—released in spring 2016—to the final three cohorts. According to satisfaction survey data (**Figure 5**), DPP participants strongly agreed that program materials were useful. Learning how to plan for special events (e.g., vacations, birthdays) and how to cope with setbacks were especially helpful portions of the curriculum.

FIGURE 5: PARTICIPANT SATISFACTION WITH DPP MATERIALS (AVERAGE SCORE)



CURRICULUM CHALLENGES AND SOLUTIONS

During interviews and focus groups, lifestyle coaches and participants noted challenges with certain aspects of the curriculum (**Table 8**). Because coaches noticed these issues during program implementation, they, along with the WCHP, were able to creatively address them.

TABLE 8 : CURRICULUM CHALLENGES AND SOLUTIONS

CHALLENGES	PROGRAMMATIC SOLUTIONS
Difficulty understanding serving sizes, portion control, food labels, calculating fat grams and calories, and tracking food intake	Introduction of tools and props such as portion plates, measuring cups, measuring spoons and visuals that helped visualize the amount of fat or sugar in foods
Minimal knowledge of healthy cooking methods	A healthy cooking demonstration and farmers' market visit for each of the cohorts
Difficulty initiating or maintaining an exercise regime	Dedicated physical activity sessions for cohorts C through F, including walking, exercising in the park or classroom and demonstrations with resistance bands, light weights and jump ropes
Participant need for greater frequency of post-core sessions	Changed post-core (months seven through 12) session frequency from once a month to twice a month for cohorts C through F

PARTICIPANT SATISFACTION

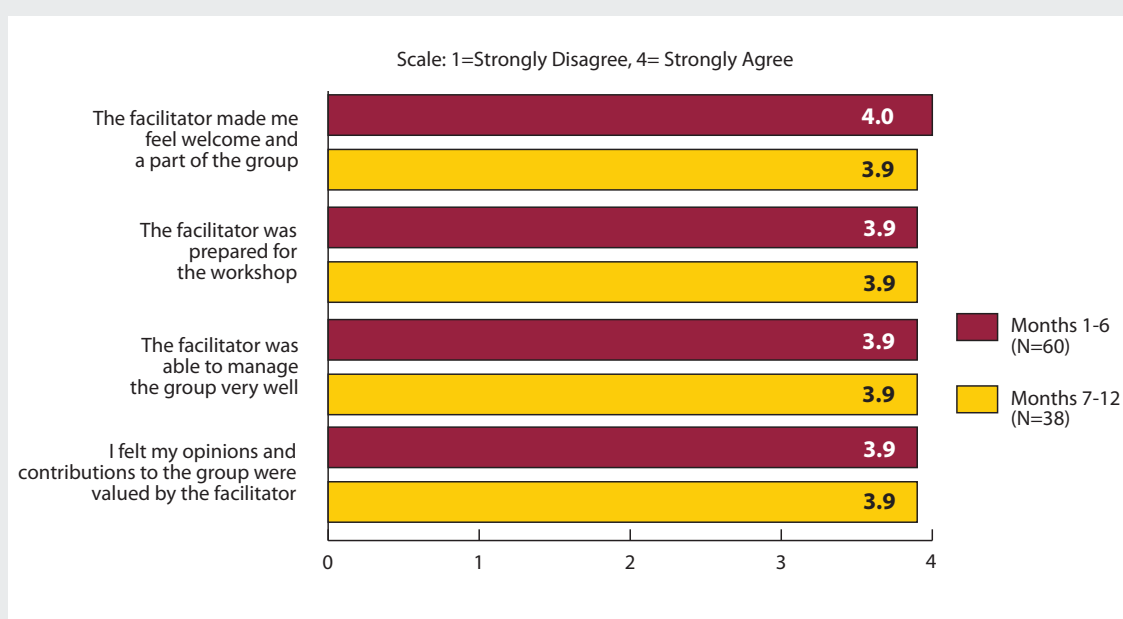
Program participants were, overall, highly satisfied with the DPP. On average, they strongly agreed on the NDPP Satisfaction Survey that they would recommend the program to a friend.

In focus groups, we found that program satisfaction was associated with positive appraisal of lifestyle coaches. As can be seen in **Figure 6**, DPP participants strongly agreed, on average, that coaches were welcoming, prepared, valued participant input and managed the groups well, at both the six-month and one-year checkpoints.

Participants praised coaches for being encouraging, supportive, positive, motivational, non-judgmental, committed and compassionate. Coach availability by phone and text between sessions was perceived as especially helpful, as it provided encouragement and support throughout the week, and allowed participants to solicit assistance with challenges in real time. Participants expressed gratitude for those coaches who “went above and beyond” the scope of their responsibilities by providing off-hours, one-on-one attention.

Participants praised coaches for being encouraging, supportive, positive, motivational, non-judgmental, committed and compassionate.

FIGURE 6: PARTICIPANT SATISFACTION WITH COACHES (AVERAGE SCORES)



PARTICIPANT OUTCOMES

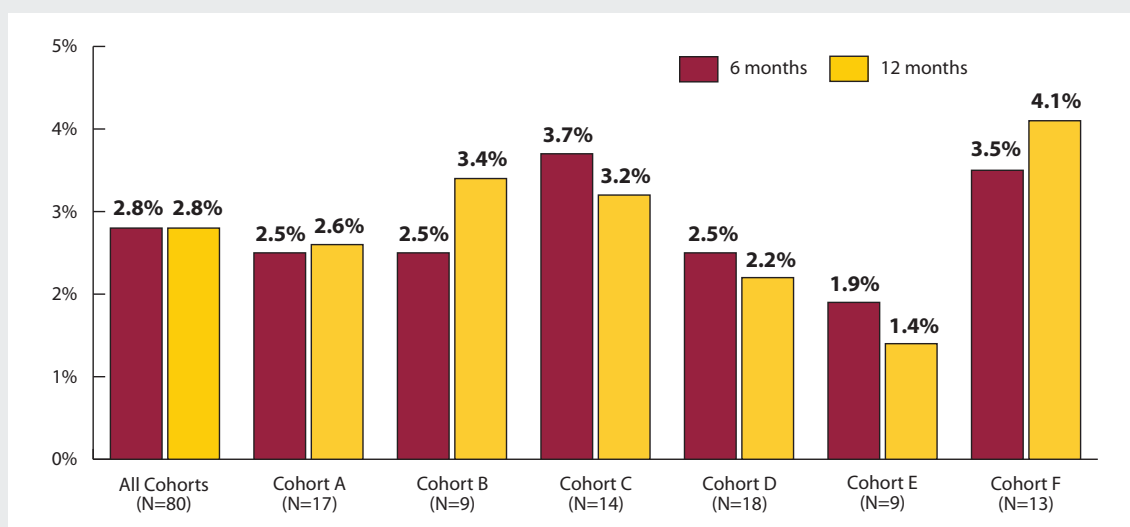
WEIGHT OUTCOMES

The primary goal of the DPP was for participants to achieve modest weight loss of 5 percent to 7 percent of baseline body weight, at six months and over the entire one-year prevention period. Lifestyle coaches tracked participant weight at each session, and one of the WCHP's field coordinators entered this data into the Compass data tracking tool. Percentage of weight loss was calculated, and then averaged for participants who attended a minimum of four sessions. The first and last weights recorded for each participant during months one through six and months one through 12 were used to calculate this measure.

*Sixty (75 percent)
out of 80
participants
lost weight,
achieving a total
weight loss of
515 pounds*

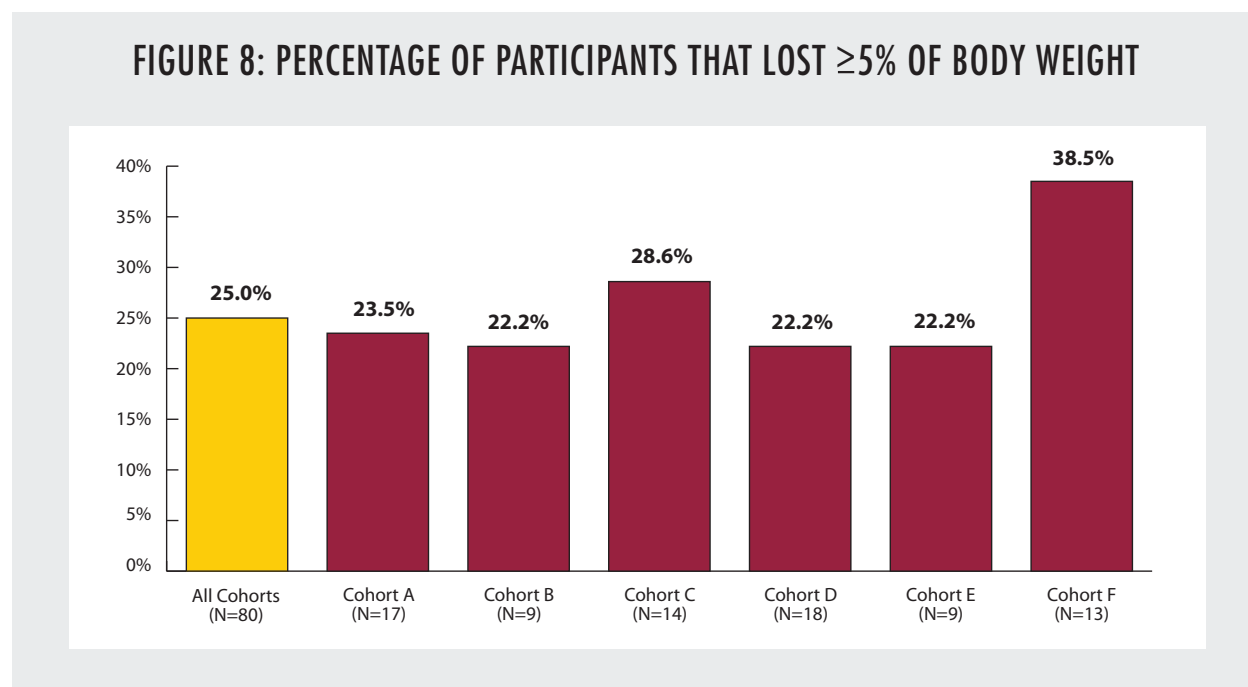
Sixty (75 percent) out of 80 participants lost weight, achieving a total weight loss of 515 pounds. Among all 80 participants, the average weight loss was 5.4 pounds at six months and 5.5 pounds at 12 months. The difference between weight at baseline and weight at 6 months and 12 months was statistically significant ($P < .01$). As illustrated in **Figure 7** below, average weight loss approached 3 percent for all cohorts combined at the end of six months, and over the entire intervention period. None of the cohorts met the CDC standard of at least 5 percent weight loss of starting body weight. The highest average weight loss was 3.7 percent at the end of six months for Cohort C, and 4.1 percent at the end of 12 months for Cohort F.

FIGURE 7: AVERAGE PERCENTAGE WEIGHT LOSS



Our program yielded lower-than-average weight loss as compared to that found in Ely and colleagues' evaluation of DPP programs in 220 organizations across 40 states.²⁶ In that evaluation, the median weight loss was 3.6 percent for participants who completed at least four DPP sessions; in our sample, the median was 1.9 percent. Ely et al. found that the odds of meeting the 5 percent weight-loss goal was significantly lower among females than males, younger participants (18–44) than older ones (65+), and non-Hispanic Blacks and participants in the “other race” category compared with non-Hispanic Whites. Our lower-than-average weight loss could be related to having a high proportion of younger-than-65 years old, female, non-Hispanic Black participants. However, we did not find statistically significant differences in the average percentage of weight loss across demographic groups.²⁷

While no entire cohort achieved the CDC standard of at least 5 percent weight loss, a notable minority of participants did achieve this goal. **Figure 8** shows the percentage of participants who lost greater than or equal to 5 percent of their starting body weight, overall and by cohort. Twenty-five percent of participants in all cohorts combined lost 5 percent or more of their initial body weight; by cohort that percentage ranged from 22.2 percent to 38.5 percent.



26 Ely EK, Gruss SM, Luman ET et al. A national effort to prevent type 2 diabetes: participant-level evaluation of CDC's national diabetes prevention program. *Diabetes Care*. 2017 May 12.

27 It is possible that we did not find statistically significant differences in weight loss across demographic groups given the relatively small number of participants in our program.

The average percentage of weight loss by number of sessions attended is shown in **Figure 9**. As in Ely et al, we found that greater attendance led to greater weight loss.²⁸ Participants who attended 25 or more sessions met the CDC standard, shedding an average of 5.2 percent of their initial body weight, more than individuals who attended fewer sessions.

FIGURE 9: AVERAGE PERCENTAGE WEIGHT LOSS BY NUMBER OF SESSIONS ATTENDED

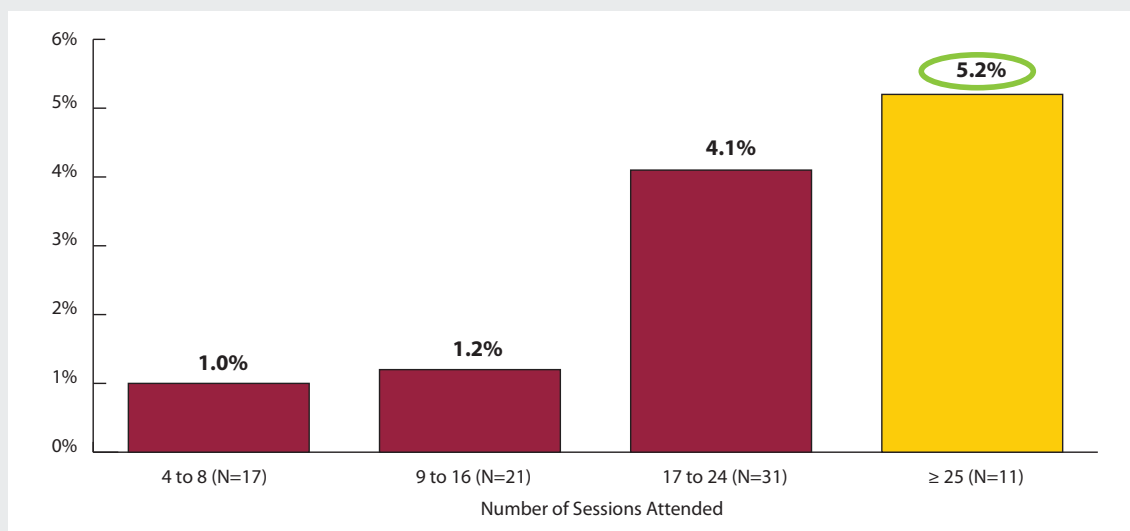
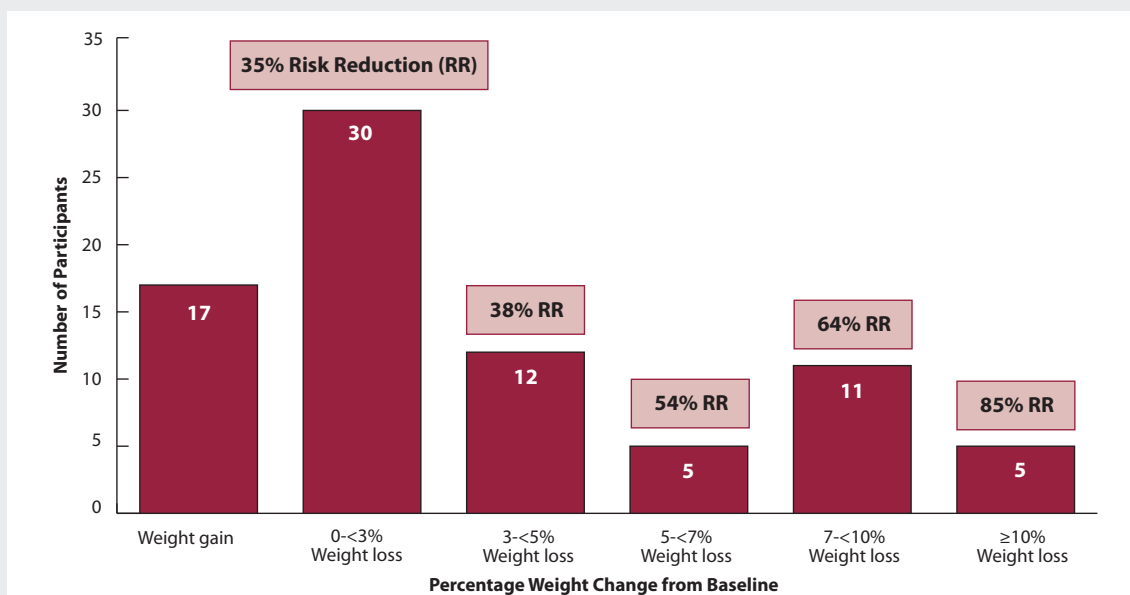


FIGURE 10: PERCENTAGE WEIGHT CHANGE AT ONE YEAR (N=80)



²⁸ Ely EK, Gruss SM, Luman ET et al. A national effort to prevent type 2 diabetes: participant-level evaluation of CDC's national diabetes prevention program. *Diabetes Care*. 2017 May 12.

Applying risk-reduction differentials found in the literature²⁹, most of the program's 80 participants may have benefited from diabetes risk reduction, as shown in **Figure 10**. Those who achieved less than 3 percent weight loss may have reduced their risk of diabetes by as much as 35 percent. Those who achieved a 3 percent to 5 percent weight loss may have reduced their risk by 38 percent.

Focus group participants consistently cited weight-loss successes:

"I can't believe I'm down two sizes. I used to wear a 14—now I'm down to a 10, a medium. I'm buying medium sizes. Oh my goodness—this medium fits me!"

"I'm down one size to a size 12. Years ago, I could not fit in that. I'm happy to report I'm losing weight and my daughter is losing weight. I'm encouraging other people. They think if I can lose weight, they can too. It's working."

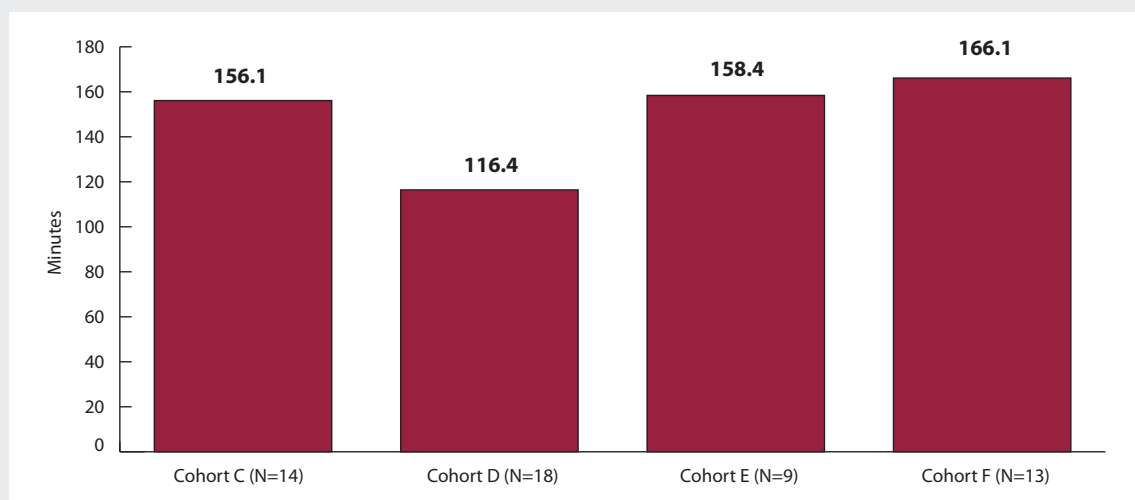
"Feeling good—I fit into my clothes."

"I've lost a good fifteen pounds and I feel great."

PHYSICAL ACTIVITY

The CDC recommends a minimum of 150 minutes of moderate exercise per week—a key program component. Average weekly physical activity minutes are shown in **Figure 11** for four out of six cohorts.³⁰ Cohorts C, E, and F met the program's physical activity goal of 150 minutes, with average weekly physical activity minutes ranging from 156.1 to 166.1. Cohort F, which also had the highest average percentage of weight loss, recorded the highest average physical activity minutes.

FIGURE 11: AVERAGE PHYSICAL ACTIVITY MINUTES

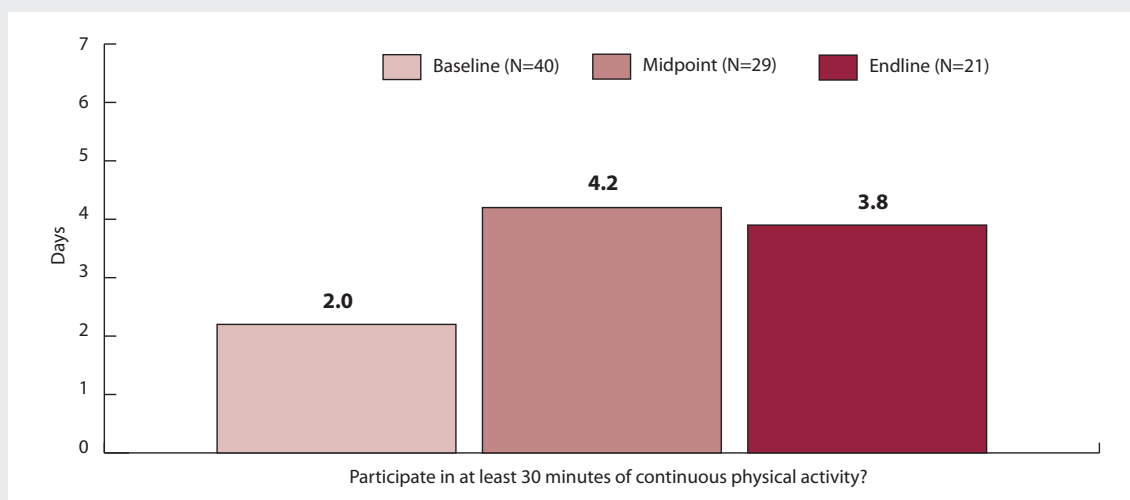


29 Maruthier NM et al. Early response to preventive strategies in the diabetes prevention program. *J Gen Intern Med.* 28(12): 1629-36.

30 Physical activity data is not reported for Cohorts A and B due to missing data.

According to behavioral and attitudinal survey findings, DPP participants increased the average number of days they participated in at least 30 minutes of physical activity by approximately two days, from baseline to the end of program implementation (**Figure 12**). These results align with findings that program participants approached or met the physical activity goal per week across cohorts C to F.

FIGURE 12: ON HOW MANY OF THE LAST 7 DAYS DID YOU ...



Focus group results support survey findings. Many participants identified increasing their physical activity levels as one of their most notable achievements. They reported employing the following exercise strategies: walking more, taking the stairs instead of the elevator/escalator, attending a gym (riding the bikes and running on treadmills), engaging in aerobics (including exercise classes), weight training, hiking and using resistance bands to stretch:

I never exercised before this program; because of this program, I joined the gym. Now I am going to the gym almost five days a week.
—DPP Participant

"I take the stairway from the first floor to the second floor. Today, as soon as I walked in, I hit the stairs. I just went right up the steps without a problem. That's what we do now."

"I take the steps in the train station now. Before, I would take the escalator—now it's walking."

"When I do things now, I do them more briskly so that I can break a sweat. Like when I wash my car—now when I wash my car, I am full of sweat. I will turn anything into exercise now."

"I have videos at home that I exercise with and I have an exercise bike. I get on my stationary bike while I watch a TV program and I just go."

For some participants, exercise was non-existent or had fallen to the wayside prior to their participation in the program. However, they found the motivation and drive to disengage from a sedentary lifestyle to adopt a more active one:

"I never exercised before this program; because of this program, I joined the gym. Now I am going to the gym almost five days a week."

"I started exercising because of this class."

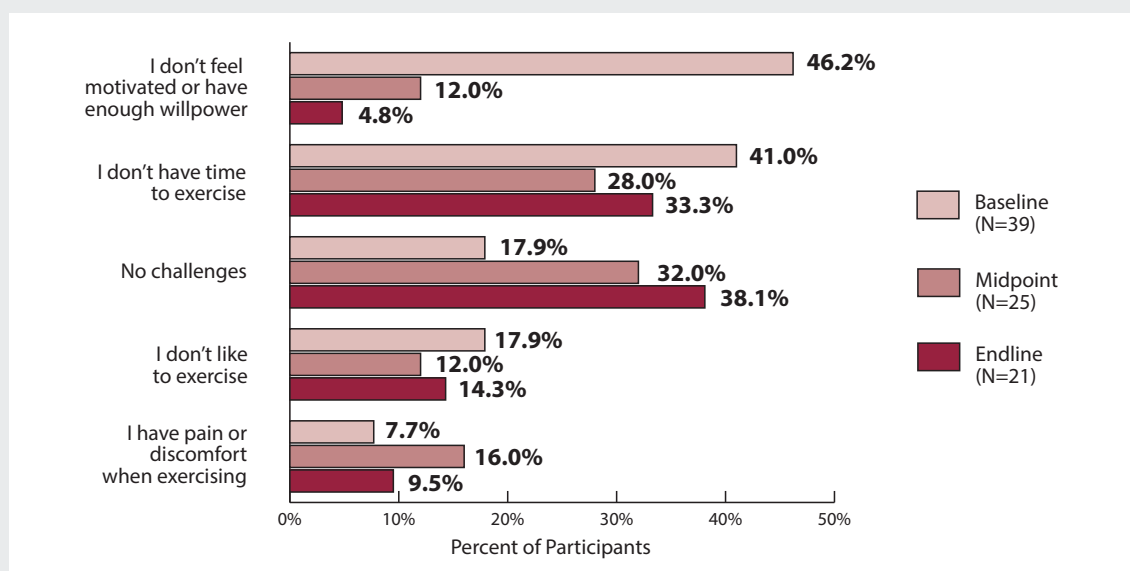
"I exercised years ago. I'm going backwards now to do the things I should've been doing. I shouldn't have stopped."

"I wouldn't exercise before, but now I use my treadmill and bike."

Behavioral and attitudinal survey results provide perspective on how participants' attitudes toward exercise changed. **Figure 13** depicts that, at baseline, nearly half of participants (46 percent) across three cohorts indicated not feeling motivated or having enough willpower to exercise. However, by the end of the program, that percentage decreased to less than 5 percent. The percentage of participants reporting having no exercise challenges increased from about 18 percent at baseline to 38 percent at endline. The percentage of participants indicating a dislike for exercise stayed relatively the same, from start to end of program implementation.

Despite many participants successfully increasing their physical activity, some found this component of the program to be rather challenging—more so than changing their eating habits, according to focus group discussions. For these participants, feelings of laziness, exhaustion, difficulty finding motivation, and having no time to exercise were cited as barriers to increasing their physical activity levels.

FIGURE 13: EXERCISE CHALLENGES



DIETARY HABITS

Research has shown that an increase in physical activity, dovetailed with a modest change in diet and eating habits, is imperative to diabetes risk reduction. At the end of the program, participants indicated they consumed foods high in fat on an average of nearly two out of seven days of the week, a decrease from just over three at baseline (**Figure 14**). Participants reported an increase in the number of days they ate five or more portions of fruit and vegetables from 3.7 to 5.0 days on average (**Figure 14**). They also reported lower soda consumption; by the end of the program, those reporting no soda or sugar sweetened beverage consumption in the past week increased from 37 percent to 62 percent (**Figure 15**).

FIGURE 14: ON HOW MANY OF THE LAST 7 DAYS DID YOU ...

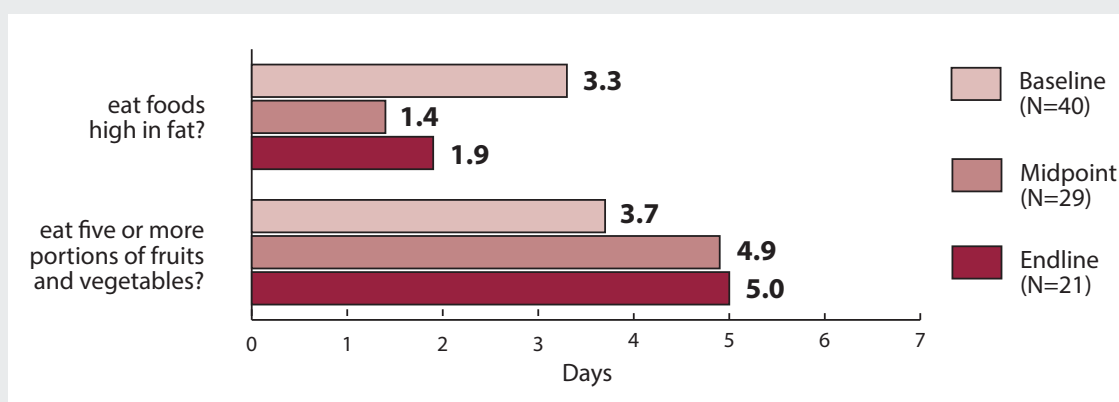
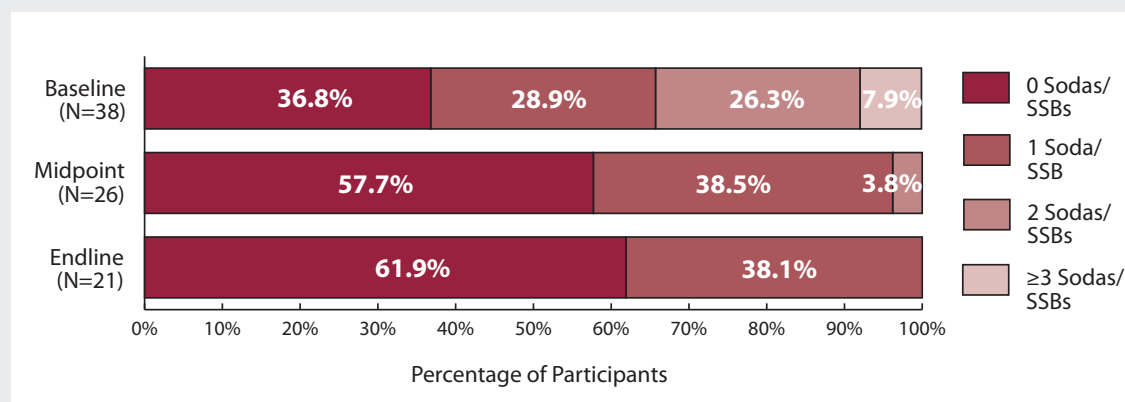


FIGURE 15: DAILY SODA AND SUGAR-SWEETENED BEVERAGE (SSB) CONSUMPTION OVER THE PAST 7 DAYS





Focus group participants echoed survey findings:

"I used to drink soda every day. I stopped drinking soda, and now I drink water."

"The things that I was doing previously and that I thought were good for dieting—like drinking Diet Coke—weren't correct. Now all I drink is water."

"I am eating more chicken and no steak ... I used to love steak."

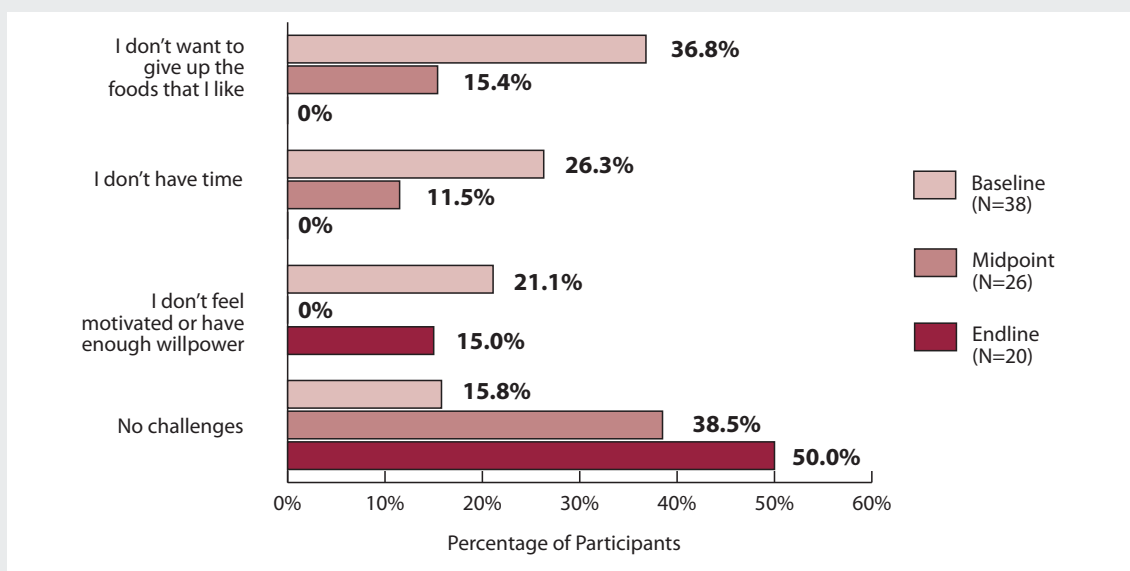
"I try to eat more vegetables—especially fresh vegetables."

"I have a sweet tooth, but now I am making healthier choices. Instead of cake, I can eat more fruit."

Along with an increase in vegetable and fruit consumption and a decrease in sugar-sweetened beverage intake, they noted many other changes in the types of foods they consumed. For example, participants reported eating more chicken, fish and other lean meats, as well as whole-grain carbohydrates (less rice overall), lower-fat dairy products, smoothies and fewer saturated fats/oils. Some mentioned changes in how they cooked foods—no longer frying, but instead opting to boil or bake their meals—and exercising portion control, including evading buffets where there is a high temptation to eat more than needed.

Success does not come without challenges. At the start of the program, participants identified several obstacles to healthy eating on the behavioral and attitudinal survey (**Figure 16**). More than a third (37 percent) indicated simply not wanting to give up the food they liked; while others felt they didn't

FIGURE 16: HEALTHY EATING CHALLENGES



have time (26 percent) or didn't feel motivated (21 percent) to eat healthier foods. During focus group discussions, the majority of participants noted significant challenges to changing their eating habits. Challenges identified were: giving up sugar/sweets; having a familial support system; temptation; and binge-eating. Food tracking was also named as a challenge. Participants found this to be time-consuming and difficult, due to the necessity of determining the potential number of fat grams and calories ingested at each meal, as well as serving size. A few DPP members admitted to not tracking their meals on paper because it was burdensome.

Despite the barriers to acquiring healthy eating habits, 50 percent of survey respondents reported no challenges in adopting a healthier diet by the end of program implementation, up from 16 percent at baseline (**Figure 16**).

HEALTH STATUS

In order to gauge DPP participants' perceptions of their health status over the course of the program, the attitudinal and behavior survey asked respondents to categorize their health status at three different points in time. On average, respondents stated their health was good at both baseline and at the end of program implementation (**Figure 17**).

Participants were also asked to compare their current health status with their health status prior to DPP participation. A large majority of respondents (**Figure 18**) stated that their health was better than before the program at both midpoint (75 percent) and program end (81 percent).

FIGURE 17: SELF-REPORTED HEALTH STATUS (AVERAGE SCORE)

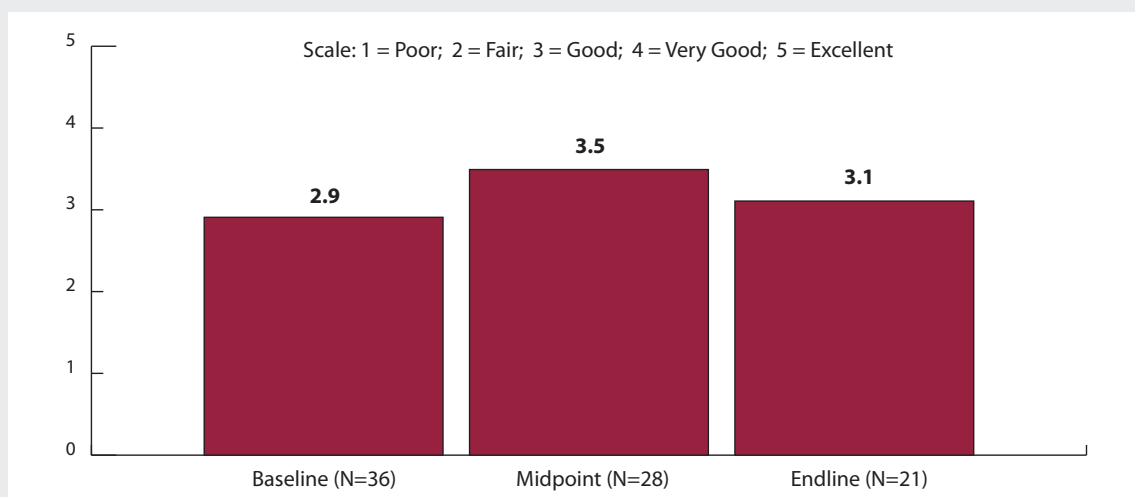
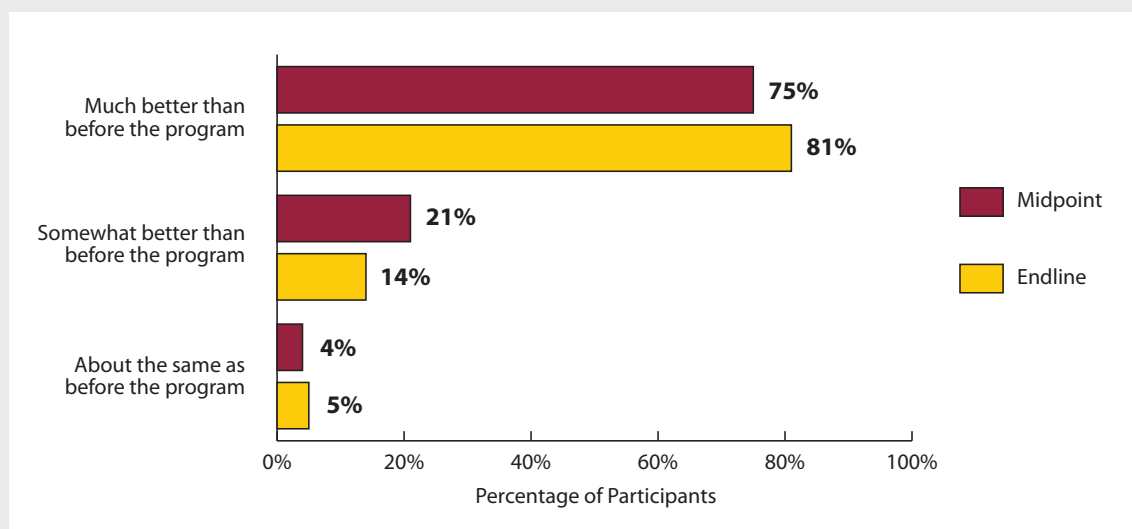


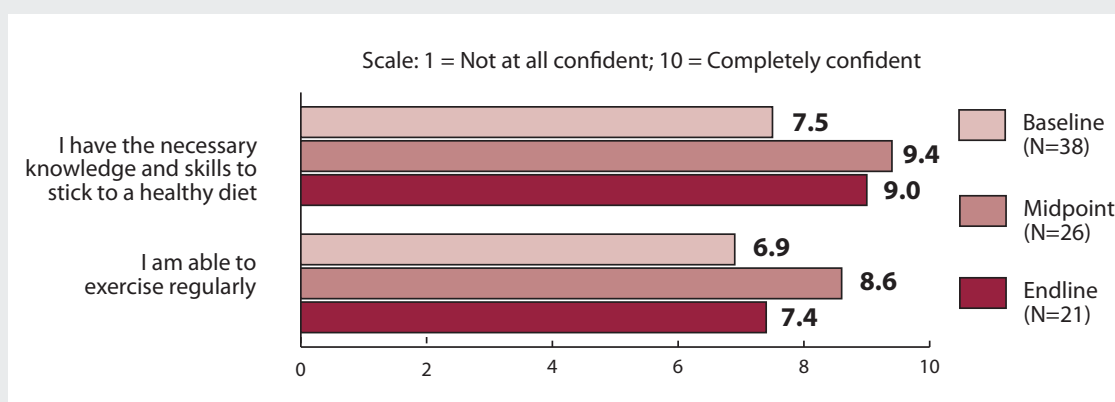
FIGURE 18: SELF-REPORTED HEALTH STATUS COMPARED TO BEFORE THE PROGRAM



ATTITUDINAL AND KNOWLEDGE CHANGE

Rather than focusing solely on weight loss, the lifestyle intervention emphasizes long-term improvements in nutrition and physical activity. The attitudinal and behavioral survey assessed the extent to which participants felt confident in their knowledge and skills to adhere to a healthy diet, as well as their ability to exercise regularly. According to **Figure 19**, survey respondents indicated—on average—feeling almost completely confident in their knowledge and skills needed to stick to a healthy diet upon completion of the program. Furthermore, participants' average confidence level in their ability to exercise regularly increased as the program progressed over 12 months.

FIGURE 19: CONFIDENCE LEVEL (AVERAGE SCORE)



During focus group discussions, participants noted learning how to read food labels as part of the curriculum. Armed with this new knowledge, they were able to identify healthier food and beverage options when shopping, as well as having a greater understanding of portion control:

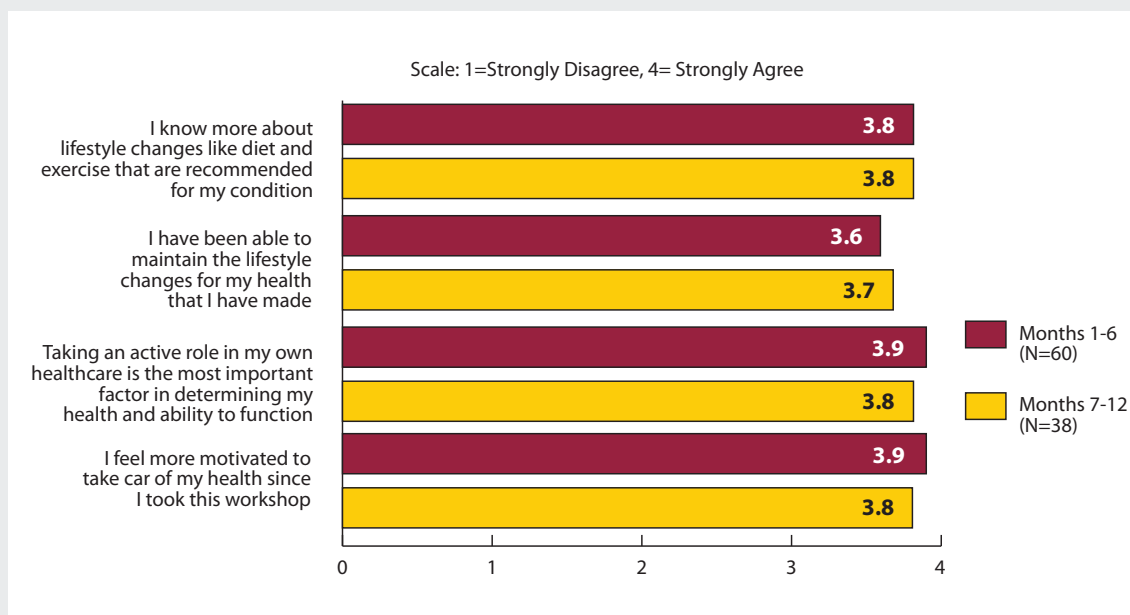
“My husband likes to buy regular cheese and I tell him ‘no; low-fat cheese.’” So I taught him how to read the labels so he will be more conscious of purchasing when I’m not with him doing the food shopping.”

“A lot of things we just didn’t know about, like reading packaging, products and different names. Those were in the text, and it made me go and actually study.”

“For example, you buy a bag of peanuts or a bag of chips and the whole bag is not the portion. You’re supposed to have a few from the bag or a few from this. Even a soda or a drink—you’re not supposed to drink the whole bottle.”

In addition to the attitudinal and behavioral survey, several items on the QTAC-NY Participant Satisfaction Survey assessed participants’ attitudes about adopting a healthy lifestyle (**Figure 20**). Overall, at months six and twelve, survey respondents strongly agreed—on average—that they were more knowledgeable about lifestyle changes and able to maintain those changes; that taking responsibility for their own health care was vital; and that they felt more motivated to take care of their health since joining the program.

FIGURE 20: ATTITUDINAL CHANGE (AVERAGE SCORE)



OTHER OUTCOMES

As a result of lifestyle modification, DPP participants experienced other substantial outcomes. In focus group sessions, several noted non-weight-related changes such as: increased energy levels; less stress; better sleep quality; easier breathing; climbing stairs with greater ease; and improved perceptions of body image.

Some participants reported physical health changes, such as a decrease in A1C and blood pressure.

"My A1C was about 6.4; it's now down to 5.9."

"In fact, I went to see my doctor and my A1C levels have come down. I was 6.0 and now I'm 5.5."

"I went to see my doctor yesterday—for the first time, I had the lowest numbers I have ever had. Being conscientious makes a difference."

"My blood pressure is much lower."

Additionally, the program saw the emergence of "Wellness Champions," who had personal success during the course of their participation and who went on to promote the DPP among peers. Lifestyle coaches noted during interviews that several referrals to the program were made by Wellness Champions, ultimately aiding with recruitment. One champion drove momentum for her cohort by sharing recipes, texting participants in between classes and offering to conduct make-up sessions for people who missed sessions.

Program participants also walked away with a strong sense of community built from their shared journey of adopting lifestyle changes. The amount of unwavering support that participants showed each other was a prodigious motivating factor in fostering their drive to continue the program.

"It's like a team. We encourage each other, and when we lose weight, we're happy. We celebrate together, and everything that happens, we go through together."

– DPP Focus Group Participant

"I made great friends." "I had a support group that understands my issues."

"I loved the fellowship of a motivating group."

– Participant Satisfaction Survey Respondents

The amount of unwavering support that participants showed each other was a prodigious motivating factor in fostering their drive to continue the program.

POLICY AND ENVIRONMENTAL CHANGES AT MSBI

The evaluation explored shifts in organizational “culture” that would support the health and wellness of employees. Several planning committee members reported that the DPP spurred interest in broadening the reach and scope of worksite wellness at MSBI.

“The DPP pilot played an important role in laying the foundation for launching a broader worksite wellness program.”

– WCHP Planning Committee Member

“I think the DPP has advanced (the culture of wellness) some. It is part of an ongoing conversation, and we are trying to have a bigger presence in wellness.”

– MSBI Planning Committee Member

SUBCOMMITTEE WORK

With Union and management agreement, the DPP planning committee launched a subcommittee in November 2016, to foster the development of policies and programs to promote healthy eating and increased physical activity among MSBI employees. Like the larger DPP planning committee, the subcommittee was composed of 1199SEIU, MSBI management, NBF and WCHP members. The subcommittee met five times, and cultivated greater Union and management collaboration on a number of wellness initiatives, including:

- Promoting MSBI’s new employee gym;
- Increasing healthy choices in the hospital’s vending machines;
- Developing designated walking paths in the hospital;
- Promoting healthy eating by publicizing recipes from an 1199SEIU NBF cookbook; and
- Assuring wider dissemination of MSBI’s wellness calendar to the Union and all MSBI employees.

The final subcommittee meeting took place in July 2017. **By that time, labor and management stakeholders had committed to launching a co-led wellness committee to continue joint work on worksite wellness at MSBI.** The wellness committee had its inaugural meeting in August 2017.

“The DPP pilot played an important role in laying the foundation for launching a broader worksite wellness program.”

–WCHP Planning Committee Member

PARTICIPANT PERCEPTIONS OF MSBI SUPPORT

We hypothesized that DPP participant perceptions of MSBI's support of employee health and safety might change as a result of completing the program. **Figure 21** shows that perceptions shifted only slightly. Compared to baseline, at one year, participants were in slightly greater agreement that MSBI provided them with the opportunity to eat a healthy diet, to reduce stress and to be physically active.



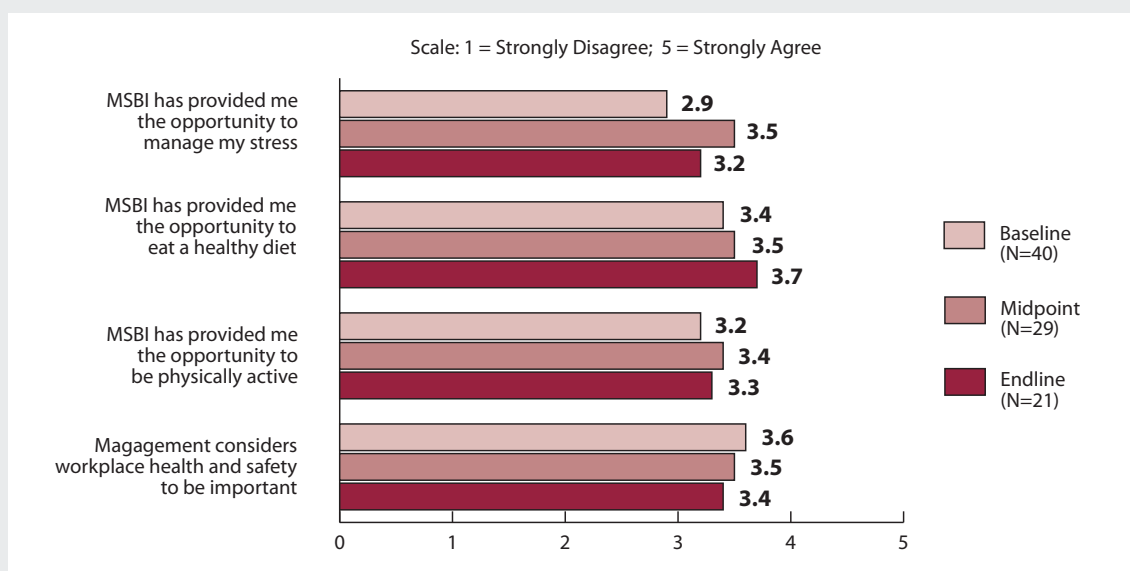
“

I think the DPP has advanced (the culture of wellness) some. It is part of an ongoing conversation, and we are trying to have a bigger presence in wellness.

—MSBI Planning Committee Member

”

FIGURE 21: PERCEPTIONS OF MSBI SUPPORT OF WORKPLACE WELLNESS (AVERAGE SCORE)



CONCLUSION AND LESSONS LEARNED

Our evaluation aimed to assess the feasibility and effectiveness of a Diabetes Prevention Program in a unionized hospital setting. Employing a number of quantitative and qualitative methods, we found that a DPP can be successfully deployed for hospital workers as long as dedicated staffing is available, and stakeholders consistently collaborate to oversee planning and implementation. However, given the program's staffing needs, the model of a WCHP-led DPP may not be sustainable or replicable at other hospital worksites.

Specific lessons learned during the course of the DPP are:

LABOR MANAGEMENT RELATIONSHIP

- Early buy-in from Union and management leadership was critical to launching and sustaining the DPP throughout its nearly two-year existence; and
- A well-functioning, collaborative labor-management planning committee dedicated to problem-solving was instrumental to successful program planning and implementation.

IMPLEMENTATION

- The program required robust resources and dedicated staff for planning, implementation, oversight and evaluation. The lack of a wellness coordinator at MSBI slowed recruitment and resolution of implementation challenges;
- Frequent communication with Union and management partners was necessary for resolving logistical challenges;
- Recruitment was more challenging than the planning committee expected:
 - A persistent and multi-pronged recruitment strategy was required; and
 - Direct methods of recruitment (e.g., onsite visits, employee referrals, participant referrals) were more effective, overall, than indirect (e.g., email, posters) approaches, especially for recruiting later cohorts; and
- Implementation might have been more efficient and seamless had MSBI assigned a wellness coordinator to oversee the project:

“The key challenge was for MSBI to take on implementation as their responsibility rather than the WCHP. Perhaps this should have been negotiated more specifically at the beginning of the project, and resources should have been identified to support MSBI involvement. That said, this was a pilot, and although it did not produce a replicable model for DPP dissemination, it did stimulate discussions about the need for MSBI to dedicate support to worksite wellness.”

– WCHP Planning Committee Member

ATTENDANCE AND ENGAGEMENT

- Program enrollment was hindered by limiting classes to lunchtime and to certain days of the week. Some individuals who signed up for the DPP, but did not attend, cited the incompatibility of session times with their shift schedules;
- Regular attendance and retention was impacted by release-time issues that were partly the result of high workloads on certain units and in certain departments. Greater program buy-in from middle management might have facilitated attendance for participants affected by release-time barriers;
- Coach connection with participants between sessions by phone, in-person or by text helped to sustain engagement and to ensure adherence to healthy eating and physical activity recommendations. Support outside of the classroom was very well-received by participants, many of whom felt that it facilitated staying on track with the program;
- Many participants reported that once-monthly sessions in the post-core phase of the program were insufficient to maintaining healthy eating and exercise habits. Twice-monthly meeting frequency had to be implemented in months seven through 12 to sustain engagement over the course of the year-long program; and
- A notable number of participants found it difficult to adopt an exercise regimen and lacked healthy cooking skills. Program enhancements such as dedicated physical activity sessions, cooking demonstrations and farmers' market visits promoted participant engagement by meeting some of their stated needs.

PARTICIPANT OUTCOMES

- The majority (75 percent) of DPP participants achieved some weight loss, thereby reducing their risk of developing diabetes;
- Average weight loss was 2.8 percent for all cohorts combined. Twenty-five percent of participants met the CDC target of at least 5 percent weight loss;
- As in studies published in the literature,³¹ greater attendance was associated with better weight-loss outcomes;
- Participants identified coach and classmate support and encouragement, as well as nutrition and physical activity education, as factors contributing to their success; and
- "Wellness Champions" emerged and served as proponents of the program. Wellness Champions played an integral role in ramping up participant recruitment, by making several referrals to the DPP.

CULTURE OF WELLNESS

- Labor-management collaboration on the DPP laid the groundwork for developing a worksite wellness program. The program led to the formation of a subcommittee dedicated to fostering environmental and policy change to promote healthy eating and physical activity among all MSBI employees. In concert, the planning committee and subcommittee have created the will and momentum to launch a full-fledged, co-led labor-management wellness committee.

31. Ely et al (2017).

APPENDIX A: DPP PLANNING COMMITTEE MEMBERS

1. **Barbara Barnett, MD**, Chief Medical Officer, Mount Sinai Beth Israel
2. **Christopher Berner**, Vice President of Human Resources, Mount Sinai Beth Israel
3. **Sonali Das**, Research Analyst, 1199SEIU League Labor Management Project
4. **David D’Souza, MD**, Medical Director, Occupational Medicine, Mount Sinai Beth Israel and Interim Medical Director, Employee Health, Mount Sinai Health System
5. **Andrew Goodman, MD**, Advisor, Workplace and Community Health Program, 1199SEIU League Labor Management Project
6. **Eva James, RN**, Contract Administrator, 1199SEIU, RN Division
7. **Jo-Ann Jones-Charles**, Field Coordinator, Workplace and Community Health Program, 1199SEIU League Labor Management Project
8. **Manuel Leon**, Vice President, 1199SEIU
9. **Patricia Marthone, MD**, Vice President, 1199SEIU, RN Division
10. **Marcia Mayfield**, Senior Research Manager, 1199SEIU League Labor Management Project
11. **Kemmely Mondell**, Field Coordinator, Workplace and Community Health Program, 1199SEIU League Labor Management Project
12. **Anna Ortiz**, Contract Administrator, 1199SEIU
13. **Chris Pernell, MD**, Senior Manager, Workplace and Community Health Program, 1199SEIU League Labor Management Project
14. **Celia Shmukler, MD**, Medical Director, Worksite Wellness and Member Assistance Programs, 1199SEIU Benefit and Pension Funds
15. **Latisha Thomas**, Research Analyst, 1199SEIU League Labor Management Project
16. **Donnette Truss**, Senior Manager of Human Resources, Mount Sinai Beth Israel
17. **Estela Vazquez**, Executive Vice President, 1199SEIU

APPENDIX B: LIFESTYLE COACHES

1. **Marilyn Byron**, Tracer, MSBI
2. **Elizabeth Gavin, RN**, MSBI
3. **Jonathan Jones**, Rehabilitation Technician
4. **Jo-Ann Jones-Charles**, Field Coordinator, Workplace and Community Health Program, 1199SEIU League Labor Management Project
5. **Miriam Kho, RN**, MSBI
6. **Esther Melo**, Medical Records Analyst, MSBI
7. **Kemmely Mondell**, Field Coordinator, Workplace and Community Health Program, 1199SEIU League Labor Management Project
8. **Eloise Williams**, Regulatory Program

APPENDIX C: DPP CURRICULUM

ORIGINAL CURRICULUM (2012) Cohorts A, B and C	T2 CURRICULUM (2016) Cohorts D, E and F
CORE PROGRAM MODULES (MONTHS ONE THROUGH SIX)	
Welcome to the National Diabetes Prevention Program	Introduction to the Program
Be a Fat-and-Calorie Detective	Get Active to Prevent T2
Three Ways to Eat Less Fat and Fewer Calories	Track Your Activity
Healthy Eating	Eat Well to Prevent T2
Move Those Muscles	Track Your Food
Being Active: A Way of Life	Get More Active
Tip the Calorie Balance	Burn More Calories Than You Take In
Take Charge of What's Around You	Shop and Cook to Prevent T2
Problem Solving	Manage Stress
Four Keys to Healthy Eating Out	Find Time for Fitness
Talk Back to Negative Thoughts	Cope with Triggers
The Slippery Slope of Lifestyle Change	Keep Your Heart Healthy
Jump Start Your Activity Plan	Take Charge of Your Thoughts
Make Social Cues Work for You	Get Support
You Can Manage Stress	Eat Well Away from Home
Ways to Stay Motivated	Stay Motivated to Prevent T2
POST-CORE PROGRAM (MONTHS SEVEN THROUGH 12)	
Welcome to Sessions 7 Through 12	When Weight Loss Stalls
Fats: Saturated, Unsaturated and Trans Fat	Take a Fitness Break
Food Preparation and Recipe Modification	Stay Active to Prevent T2
Healthy Eating: Making it One Meal at a Time	Stay Active Away from Home
Healthy Eating with Variety and Balance	More About T2
More Volume, Fewer Calories	More About Carbs
Staying on Top of Physical Activity	Have Healthy Food You Enjoy
Stepping up Physical Activity	Get Enough Sleep
Balance Your Thoughts for Long-term Maintenance	Get Back on Track
Handling Holidays, Vacations and Special Events	Prevent T2—for Life!
Preventing Relapse	
Stress and Time Management	
Heart Health	
A Closer Look at Type 2 Diabetes	
Final Session: Looking Back and Looking Forward	

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