

Report to MA Department of Public Health

PWTF Worksite Wellness Data Management and Evaluation



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Final Evaluation Report (06/29/2018)

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EXECUTIVE SUMMARY

Overview

In Massachusetts, as well as in the rest of the country, worksite wellness programs are most often offered by larger employers and accessed by healthier, more educated workers. The Massachusetts “Working on Wellness” (WoW) program (www.mawow.org), funded by the Prevention and Wellness Trust Fund (PWTF), is an initiative specifically designed to expand access to worksite health promotion activities for smaller employers in the Commonwealth. This report describes the results for the participating organizations, as per steps completed and evaluation data received by March 2018.

The WoW program provides training, technical assistance, and seed funding to Massachusetts organizations to initiate new health-promoting policies, environmental supports, awareness and education programs, and other activities directed to health behavior improvements among their employees. The program is designed on the basis of current best practices, in particular emphasizing the influence of the physical work environment as well as the organizational and social climate on employee health behaviors.

The WoW program has successfully reached and delivered services to organizations that previously had no formal wellness program and few wellness policies or supportive environments. Importantly, it has reached a large number of small and moderate-size employer organizations, and a substantial number of low-wage, non-college-educated, and racial/ethnic minority workers. A substantial proportion of these workers had moderate to high health risks, especially being overweight or obese and not consuming the recommended amount of fresh produce per day. This highlights the high relevance of the WoW program to the needs of the Commonwealth’s workforce.

The program was delivered with high fidelity to its original design, with multi-level program activities in most organizations. Most employers complied with program instructions to implement changes in organizational policies and the work environment to support healthier behaviors among employees. This is an important strength of the program design, and it is very much to the credit of the program delivery personnel that they were able to provide technical information and support sufficient to achieve this.

Numerous community partnerships were developed with local organizations to provide services. The Wellness Champions of participating employer organizations were enthusiastic about the overall quality of the program and the usefulness of the educational materials and supports that they received.

The effectiveness of the interventions is supported by positive changes in many employee health indicators. It is evident that the program has helped increase the supports for employers and from them to their employees. A high proportion of employees are ready to make positive changes that will likely reduce their morbidity, health care utilization and costs.

Key Results

As of December 2017, 204 employer organizations in four cohorts were accepted into the program. Each cohort's program lasted approximately 12 months. Schedules for each cohort were staggered between November 2015 and November 2017.

Participating organizations were predominantly non-profit (63%) and highly represented by the Healthcare and Social Assistance sector (41%).

About one-half of them had 200 or fewer employees (Figure ES-1), a priority for this program. Two-thirds indicated that at least some of their employees were low-wage workers. Participating organizations were distributed throughout Massachusetts (Figure ES-2).

As reported by employers, the pooled workforce consisted of over 70,555 workers, including 64% women, 62% non-Hispanic Whites, 58% having hourly wage (non-salary), 25% having a high school education or GED or less, and 17% working evening, night or rotating shifts.

Figure ES-1 Characteristics of participating organizations

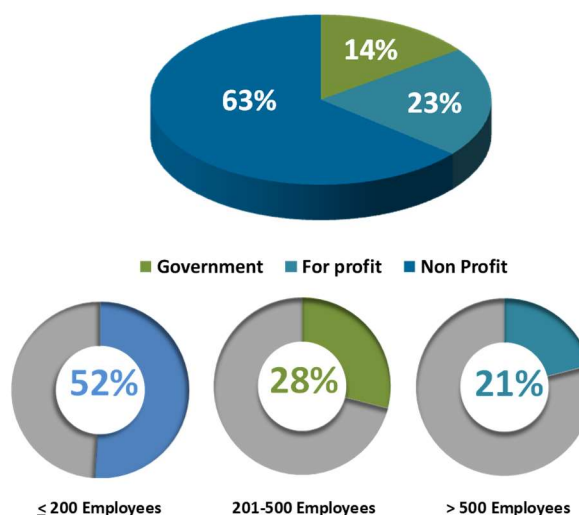
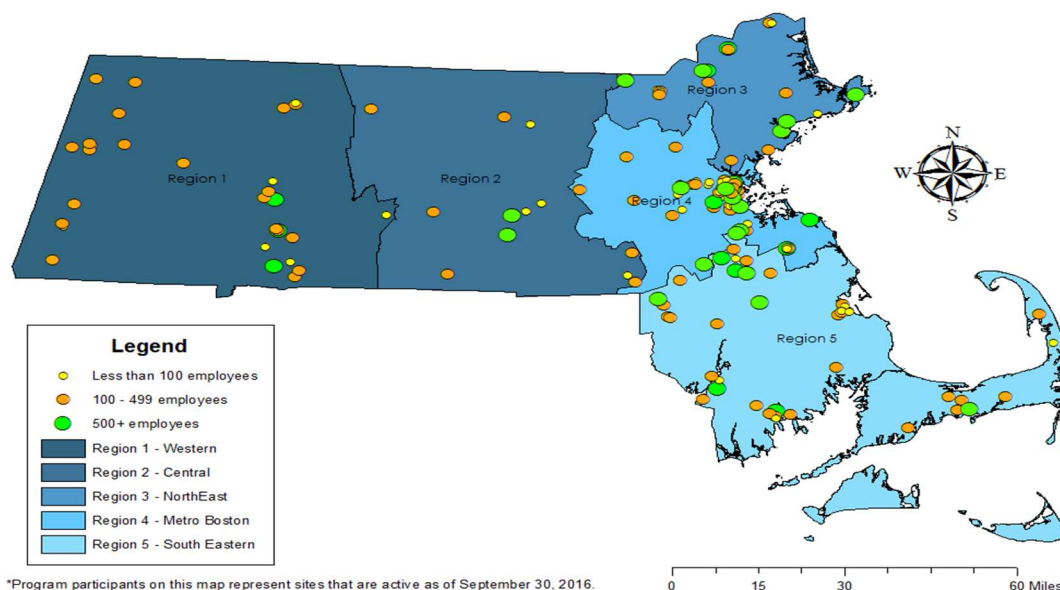


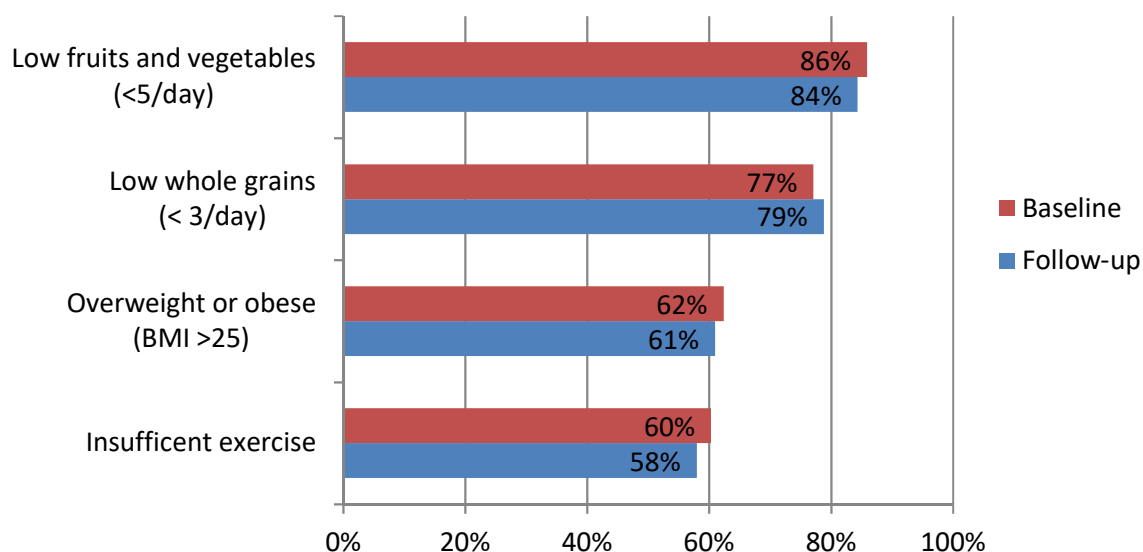
Figure ES-2 Massachusetts Working on Wellness program participants by organization size



At the beginning of the program, about half of the participating organizations offered no formal wellness program, and they had few policy or environmental supports to encourage employee physical activity, nutrition, or tobacco-free lifestyle, or to support work/life balance.

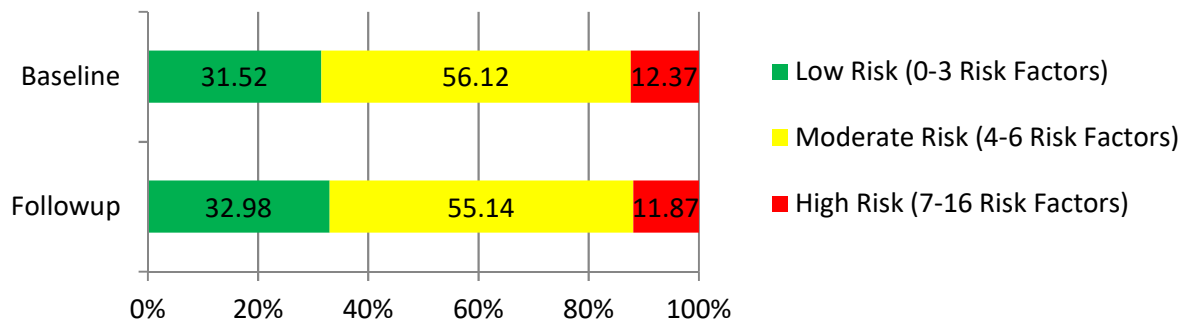
According to the employees of the participating organizations, they were ready to make positive changes to improve their health behaviors, specifically to become more physically active, eat healthier diets, and manage their weight. These goals were highly appropriate given that most of the employee participants did not eat the recommended 5 servings of fruit and vegetables per day, and over one-half were overweight or obese (Figure ES-3). Employees also expressed a great interest in obtaining services and supports to make these changes. At follow-up, more employees across the four cohorts were getting the recommended daily servings of fruits and vegetables (+1.6%, covariate-adjusted $p=0.005$), getting sufficient exercise (+2.3%, $p=0.003$), reporting that their health was not affected by stress (+1.3%, $p=0.026$), and no longer using tobacco (-1%, $p=0.002$). In addition, fewer employees engaged in binge drinking (-4.1%, $p<0.001$), getting <6 hours of sleep nightly (-1.4%, $p=0.064$) and were overweight or obese (-1.4%, $p=0.09$). The changes in fruit/vegetable intake, sufficient exercise, and tobacco use were statistically significant.

Figure ES-3 Prevalence of unhealthy diet, unhealthy body weight and insufficient exercise among employees of the participating organizations



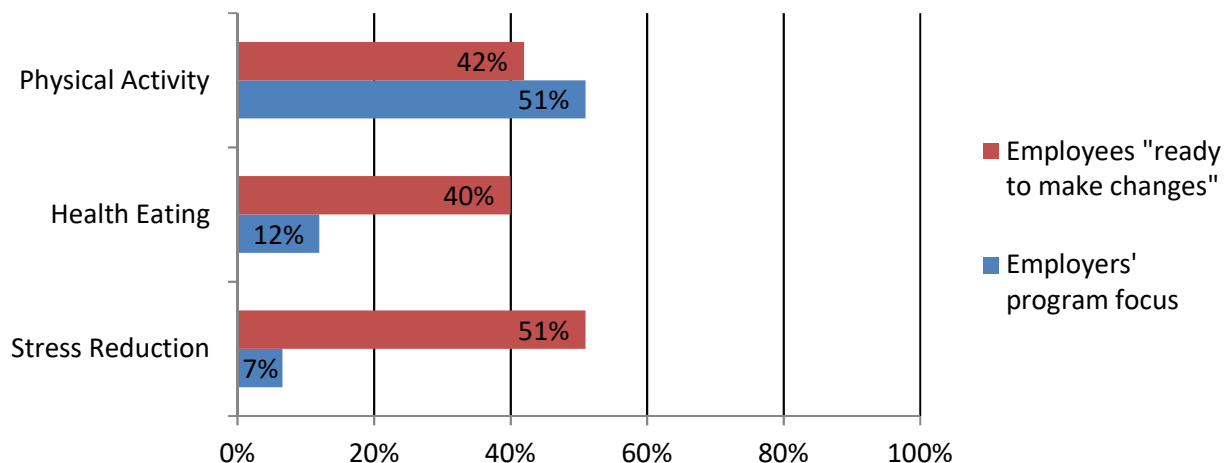
Based on the number of 16 self-reported health risk indicators in the Needs and Interest surveys, about two-thirds of employees were designated as being at either moderate (4-6 risk factors) or high risk (7-16 risk factors) at the beginning of the program (Figure ES-4). At the end of the program, the number of employees in the low risk category increased slightly, while the numbers in both the moderate and high risk categories decreased.

Figure ES-4 Proportions of employees with low, moderate and high number of health risk indicators at baseline and 12 months follow-up



Participating employers received specific feedback about the priorities indicated collectively by their workers, as well as information about desirable timing and other logistical features that would make program activities accessible. Employers' baseline program goals were predominantly to improve nutrition, increase leisure-time physical activity, maintain healthy weight and reduce stress; these were also the top three health goals endorsed by their employees (Figure ES-5).

Figure ES-5 Comparison of baseline employer program foci and employee interests in program activities



Guided by this information, participating employers successfully implemented their programs. The most commonly planned intervention activities to increase exercise were promoting community physical activity resources, step tracking competitions, and walking clubs. To improve employee dietary behaviors, the most commonly planned activities were implementing new policies to require healthy foods be served at meetings and events, promoting available healthy eating resources, and workshops on nutrition and healthy eating. To reduce or help manage stress, the most common activities planned were promoting stress

reduction resources available in the community, demonstrations and practice of stress management and coping skills, and design of designated quiet spaces. Overall, the activities implemented tended to be policy-related and awareness promotion rather than social and physical environmental supports and behavioral interventions.

The program delivery expectations were revised after Cohort 1 was enrolled, in particular to reduce the number of required goals from three to one. This change has facilitated a substantial increase in the number of participating employers in the later cohorts.

Each participating organization had an internal Wellness Champion responsible for participating in training, carrying out WoW program activities, and submitting data for evaluation. All Champions identified prospective partners that could serve as resources to their employees. Many of these were local small businesses providing wellness-related services (e.g., fitness, yoga, massage, health coaching). Non-profit organizations and health insurers (combined with health care provider organizations) were also cited frequently. Town or municipal wellness partners referred to city or town offices, many representing programs specifically supported by the MA Department of Public Health (e.g., Mass in Motion).

The program education and technical support provided were of high quality and were enthusiastically endorsed by participating employers. Despite seed funding, which was greatly welcomed by the participating organizations, staffing resources to implement in-house programs remain a challenge for small employers.

With regard to the specific goals stated by the state legislature in establishing this program, there has not yet been sufficient length of follow-up of the covered workforce to document specific changes in preventable health conditions or their costs. Nonetheless, it was possible to estimate predicted reductions in chronic disease and in health care expenditures, given the types of program activities being carried out by WoW employers and the prevalence of specific conditions and unhealthy behaviors in the workforce.

As required by the legislation, we calculated the expected benefits of this program in terms of predicted reductions in the prevalence of chronic health conditions and associated health care cost savings. We reviewed the existing literature for evidence of the effectiveness of workplace wellness activities similar to those carried out by the employers participating in the WoW program. To make our estimates, we then compiled the data from those studies in terms of reductions in chronic disease and key risk factors for those conditions.

Our summary of these potential impacts has been used to predict improvements in daily consumption of fresh fruits and vegetables, weekly exercise, weight loss, and reductions in stress that interferes with health. Our estimates show that each area targeted by employers in the program is expected to benefit thousands of their employees. Further, employers may expect to achieve savings in medical expenditures by improving health for workers who are unhealthy and thus reducing service utilization. Potential reduction in medical care expenditures has been estimated for the WoW combined workforces, based on the actual prevalence of risk factors reported in this population and the plausible range of success rates for risk mitigation for the activities carried out by these employers. The estimated cost savings

for medical care for the combined workforces range from \$0.68 to \$4.17 million for the top three Action Plan targets together (healthy eating, physical exercise, and stress management).

Therefore, the initial estimate based on the medical cost reduction through health improvement alone indicates that the WoW program may potentially yield \$0.20 to \$1.22 in direct medical care cost reduction from these three target areas for every \$1 PWTF investment on the WoW program (\$3.4 million over program period, excluding evaluation cost). The magnitude of cost saving could be greater if savings from other target areas are considered, including helping healthy people healthy, preventing chronic disease complications, synergistic effects when targeting multiple areas simultaneously, increasing productivity, and reducing absenteeism. Additionally, further expansion of the WoW program could yield higher returns since a solid foundation of program delivery and data processing infrastructure has been developed and such upfront developmental costs are likely non-recurrent in the future.

Conclusions and Recommendations

Overall, the WoW program was very well received by the participating organizations and highly rated by organizational champions. It has increased organizational policy and environment supports for priority intervention areas including healthy eating, physical activity, weight management and stress reduction. A substantially greater proportion of employees perceived greater policy and environmental supports for healthy behaviors at their workplace. Short-term evaluation data suggested that prevalence rates of unhealthy eating, inadequate exercise and unhealthy weight slightly decreased, which is likely to result in substantial reduction in medical costs and sizable return-on-investment. Based on the evident early successes of the WoW program, the independent evaluation team recommends continuation of the program delivery and evaluation, including the follow priority areas:

- Continued delivery of WoW training and technical assistance to participating employers.
- Development of new strategies/program designs for broader reach to various segments of the Commonwealth's workforce, especially underserved workers.
- Development of strategies for long term sustainment of WoW programmatic components.
- Evaluation of employee and employer program impacts beyond 1 year following program initiation/implementation.
- Continued evaluation of employer adoption, maintenance, sustainability after "graduation" from WoW.
- Continued collection of long-term program evaluation data for all cohorts, both at the organizational and employee levels.
- Evaluation of changes in health care utilization and expenditures using both self-report and All Payer Claims Data, and provision of return-on-investment analysis.

With continued financial support to the WoW program, greater reach to more workers, reductions in medical costs and higher return-on-investment can be anticipated.

METHODS

The program design, recruitment, and engagement of employers are described elsewhere (MDPH 2017). This report covers data collection, analysis, and interpretation for evaluation of the WoW program and its benefits. Relevant data elements are summarized in Table 1.

Evaluation Instruments and Measures

1. Baseline Assessments

Program Application: The initial application, completed on-line, obtained the information necessary to determine employer eligibility for the WoW program.

On-Boarding Survey (OBS): Once an employer organization was accepted and provided a signed Memorandum of Understanding, an on-line follow-up survey was requested for more detailed demographics and descriptive information about the workforce.

Employee Needs and Interests Survey: A survey was distributed to individual employees through their employers and completed online or returned via postal mail directly to the WoW program evaluation team. The survey was administered anonymously in order to protect employee privacy. The survey gathered data on employee health behaviors and indicators, as well as their interest in specific types of programs that their employers might offer. Items were extracted from previously validated instruments to the extent possible. In most cases, the baseline survey was distributed approximately two months into the program. The survey was provided on-line, and supplemented with paper surveys as needed. A Spanish-language survey was also available upon request.

Environmental Scan: Employers were asked for information on the physical attributes of the workplace, as well as existing programs and policies related to employee health. The questionnaire was provided in hard copy for the wellness committee or Champion to use in needs assessment. The data were compiled and submitted in electronic format to the evaluation team.

Organizations with multiple physical locations were not instructed or required to provide Environmental Scans for every physical facility, due to the potential paperwork burden. However, some multi-site organizations chose to do so, voluntarily, in order to report separately the physical features of each site.

Action Plan: All participating employers were required to submit a Worksite Wellness Action Plan (WWAP). The WWAP sections corresponded to the steps in the WoW Program Development Cycle. The WWAP documents the intended program priorities, goals, objectives and intervention activities planned by each employer. It was used to determine the level of funding to be provided to each employer. For each goal selected for action, employers were explicitly instructed to include activities to promote behavior change at three levels: organizational policy and/or environmental supports, individual behavioral skill-building, and awareness-raising.

Table 1. Overview of data collection instruments for “Working on Wellness” program

Instrument	Source of information	Time of administration	Key measures
Program application	Employer representative	Baseline	Economic sector; workforce size and turnover; proportion of low-wage employees; employer readiness to participate in WoW
On-boarding survey	Employer representative	Baseline	Workforce demographics; conditions of work; current wellness activities
Non-Participant survey	Employer representative, Cohort 1 only	Post-enrollment deadline	Top reasons for not participating; opinions of the program; recommendations for the future
Needs and Interests survey	Employee self-administration	Baseline; End of program	Health/disease conditions; health behaviors; overall health risk; wellness topics and activities of interest
Environmental Scan	Employer representative	Baseline	Employee health, safety, and wellbeing policies and programs in the workplace
Worksite Wellness Action Plan	Employer representative	During each program	Program assessment and planning: objectives, interventions, community partners, and resources
Process Evaluation Interviews with program delivery staff	Human Resources in Action (HRiA) and Advancing Awareness (AW) Staff	During and end of each program	Process evaluation: Programmatic successes, challenges, recommendations for changes
Worksite Wellness Evaluation Reports	Employer representative	End of each program	Values/benefits, community collaborations, reach, program goals met, costs, evaluation metrics
Interview/Survey with Wellness Champions	Employer representative	End of each program and at least one year later	Usefulness, value, involvement, and satisfaction levels, recommendations for improvements, challenges, sustainability

2. Follow-up Assessments

Process Evaluation Interviews with program delivery staff: Five group interviews were conducted with Health Resources in Action (HRIA) and Advancing Wellness (AW) program staff during the program delivery period. Interview topics by session were: 1) the planning process, collaboration and recruitment; 2) recruitment, the Needs and Interests and Environmental Scan surveys, project management, communication, and collaboration; 3) survey instrument development, report development, data collection, and report generation and delivery of both the Needs and Interests Survey and the Environmental Scan; 4) program modifications that occurred between Cohorts 1 and 2 and Cohorts 3 and 4 (recruitment, goal-setting and time commitments, technical assistance and curriculum modules, and the seed funding match); and 5) program changes that occurred over the entire duration of the program and lessons learned and recommendations to leave behind for those interested in implementing similar initiatives.

The interview findings were organized in terms of successes, challenges, and recommendations related to planning, recruitment, survey administration, project management, communication and collaboration. The group interview process assisted the program staff with solidifying and documenting the necessary changes they and the research team wanted to make to increase efficiencies and effectiveness. As a result, the group interview process served as a springboard for action.

Employee Needs and Interests Follow-up Survey: The follow-up survey was distributed by employers to their employees approximately 11 months after enrolling into the program, following the same procedures as used for the baseline survey. Employees were again surveyed about health behaviors and indicators of program interests. Additionally, they were asked questions about their awareness of, participation in, and satisfaction with their employer's wellness activities. Submission of the survey was required in order for the employer to obtain the final seed funding allocation.

Worksite Wellness Evaluation Report (WWER): Near the end of the program, participating employers were asked to submit a report to document and summarize their actual program implementation. After these were received, the evaluation team compared each WWER with the action plan (WWAP) that was submitted at baseline by the same organization.

Interview/Survey with Wellness Champions: At the end of each cohort's formal program activities, worksite wellness coordinators (or "Wellness Champions") completed a written survey or were interviewed to gather feedback about the WoW program. The questions asked about the usefulness and value of the program, levels of employee involvement and satisfaction, any challenges with implementation, and recommendations for program improvement. Additionally, they were queried about the likelihood that their own program would continue once the WoW support ends. At least one year after completion of their programs, Cohorts 1 and 2 Champions were interviewed again to find out if their programs were maintained or not, at what level and with what supports.

Data Management and Analysis

Each participating employer's Employee Identification Number (EIN), or Federal Tax Identification Number (Federal Tax ID), was used to match records across the various instruments. Industry sector was categorized using North American Industry Classification System (NAICS) codes (<https://www.census.gov/eos/www/naics/>), which were assigned based upon information provided by each employer on the on-boarding survey. In cases where the information was not available, was insufficient, or seemed questionable, a search was performed in the InfoUSA database using employer name and location; the resulting organization's NAICS code was assigned as the primary code. In a few cases, the evaluation team further re-classified employers based on additional information obtained from the employer's own on-line description.

Data on employer organizations and employee characteristics (as reported by the Wellness Champions or other employer representatives) were summarized across the four cohorts. Data on employer policies, programs, and physical facilities at baseline were summarized to describe needs and areas for potential improvement which could benefit employee health.

Preliminary information about existing wellness activities and programs was obtained in the Application. Ten items were scored (0=None, 1=Partial or limited, 2=Already in place) and then added to give a total "Existing Program" score that could range from a minimum of 0, representing having no existing programmatic elements across the ten items, to a maximum of 20 for programs that were in place. A similar score of "Program Readiness" was computed by adding seven items (each scored 0=Don't Know, 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree), constructing a scale that could range from 0 to 28.

More detailed information about the employer's existing policies, programs and facilities relevant to employee health was obtained in the Environmental Scan (ES). Similar to the preceding two scores, the ES information was compiled and scored, in this case within seven categories: physical activity, nutrition, tobacco and substance abuse, supports for parents/families, stress and mental health, supports for those with specific medical conditions, and occupational health and safety. The total number of possible points varied within category, according to the number of possible policies or facilities.

The Application and On-Boarding Survey collected information about the entire employer organization, regardless of how many physical worksites it comprised. In contrast, the Environmental Scan covered many features of the physical environment and facilities, which could vary among sites within an organization. For Cohort 1, individual employees could only be identified with respect to the entire organization. For later cohorts, the Needs and Interests Survey included an item to identify the site where the employee worked, customized for each multi-site organization, to facilitate matching individuals to their specific location and, hence, the specific characteristics reported on the Environmental Scan.

Data from the employee Needs and Interests baseline and follow-up surveys were aggregated at the employer organization level and reported to the employers for use in their wellness program development. These summaries include the prevalence of chronic health conditions, unhealthy behaviors, and working conditions among respondents that might pose obstacles to their health. The change between baseline and follow-up responses was assessed.

We constructed a summary health risk score for each individual employee, reflecting their responses to nine risk factors specified in the Needs and Interests Survey. These nine risk factors were high blood pressure, cholesterol, diabetes, body mass index (BMI), physical activity, nutrition, smoking, stress, and insufficient sleep. Individuals were classified into three levels based on their number of risk factors: Low (0-1 risk factor), Moderate (2-4 risk factors), and High (5-9 risk factors). This score was aggregated by employer for the summary report.

The overall health risk for each participating organization is represented by the proportion of employees in each of the three risk levels. The literature has shown that similar sets of scored health risk indicators are associated with increased morbidity, absenteeism, presenteeism, and health care expenditures (e.g., Edington, 2001; Burton, 2006; Henke, 2011; White, 2015).

The distribution of employees' risk level, along with employees' interest in and needs for specific types of wellness activities, were reported back to their employers, to summarize the overall health risk for each participating organization and to guide decision-making about what program activities to offer.

The 16 self-reported behavioral and health risk indicators queried in the employee Needs and Interest surveys were categorized into three domains, including Chronic Conditions, Preventive Care, and Lifestyle. A domain-specific risk score was calculated as the number of risk factors in each respective domain. The Chronic Conditions domain consisted of four health conditions, including diabetes, hypertension, high cholesterol, and depression. Preventive Care domain included three measures: having blood pressure checked within the past two years, a cholesterol check within the previous five years, and seeing a primary care physician in the past year. The Lifestyle domain included nine items related to nutrition, exercise, obesity, tobacco and alcohol use, sleep, stress, and depression. An overall risk score was computed by aggregating the three domain scores.

Organizations reported their planned and implemented program activities via the Worksite Wellness Action Plan and the Worksite Wellness Evaluation Report, respectively. These data were coded manually by at least two members of the evaluation team (to verify agreement) to assign each activity to a specific intervention type. For each program priority area (e.g., increase physical activity, improve healthy eating, and reduce stress), organizations planned and implemented a range of activities (i.e., awareness, behavior change, policy and/or environment supports) to meet their stated goals. Once activity codes were assigned, overall wellness activity frequencies were computed across all organizations to determine the overall distribution. Alignment between the activities organizations planned to implement and those that were actually adopted was assessed.

To evaluate the WoW program itself, qualitative data (open-ended responses) were collected from program staff and from organizations' Wellness Champions through the data collection instruments described above, such as the process and program evaluation interviews with program staff and Wellness Champions, the Employer Action Plan and the Employer Worksite Wellness Evaluation Report. These data have been examined, coded, organized, and reported on here by main themes, in order to assess contextual factors related to program delivery and health. Interview data from HRiA and AW staff during and after Cohort 1 suggested midcourse adjustments that were made to increase efficiency, uptake, and effectiveness for the subsequent cohorts. Employer qualitative data were used to document program implementation, goals and expectations that were met, as well as ways to improve the overall program experience for subsequent cohorts and for those who might wish to replicate the program elsewhere.

To determine variations in the effect of the WoW program and what factors promote or inhibit these variations, we examined the health care utilization and expenditures of employees of the participating organizations. The aggregated analysis, which utilized the Massachusetts All-Payer Claims Database (APCD), compared employee population characteristics, disease profiles, and health care utilization and expenditures between participating organizations before and after program implementation and a comparison group of non-participating organizations. Overall pre- and post-implementation expenditures and utilization costs were examined to determine differences based on extent of program implementation. The analysis is being finalized, and the results are expected to be available in late this summer.

We conducted extensive literature reviews to facilitate calculation of the expected long-term benefits that could be obtained from the types of wellness activities that participating employers carried out. The literature reviews separately addressed the three primary goals that virtually all employers targeted: healthier diets, increased physical activity, and stress reduction. For each goal, we extracted data from published scientific studies among programs with similar design. Data were compiled for the typical or expected success rate (i.e., achievement of desired behavioral goals, e.g., increasing exercise to a recommended level), and reductions in chronic disease and in related costs (if reported). These were used to estimate the expected longer-term benefits for employees and for the Commonwealth. The predicted benefits provided in this report are based on workforce size, baseline prevalence estimates of risk behaviors and conditions, number of likely affected employees from baseline survey, program implementation data, and our summary of potential impacts from the existing literature.

RESULTS

Employer Recruitment

HRiA and AW program staff implemented a range of recruitment strategies to broadly publicize the program to employers across Massachusetts (Figure 1). A network of 200 outreach partners in a variety of industries was established and engaged to promote WoW via their emailing lists, reaching 56,000 people. Awareness of the program was also built via paid advertisements on Facebook and LinkedIn and use of Twitter. Seventy free informational webinars about the program were presented, attracting 760 attendees. Program staff attended 33 in-person meetings with employers, which were attended by 850 people.

Figure 1. Recruitment approach and results



HRiA and AW program staff identified several employer recruitment challenges, resulting in several adaptations described below.

Centralized the Recruitment System: Centralized recruitment with a designated team member to take the lead and keep the team on track. Used an existing platform/system for applications and to communicate and consolidate their recruitment efforts. This allowed the team to know precisely what everyone is doing and allow more transparency.

Clarified Expectations: Provided potential applicants with “a run-down” (a tool of the schedule for that cohort) of expectations so they were clear about what duties they were expected to fulfill.

Improved Timing: Built in more time to effectively set out plans and recruit organizations. Moved the cohort’s launch date earlier to allow potential applicants enough time to fully understand the program and decide whether or not to apply.

Utilized A Targeted Approach: Developed an individualized approach to the recruitment process tailored for organizational types and audiences. Presented very targeted and individualized webinars and conducted speaking engagements to the appropriate audiences. Targeted underrepresented industries and lower wage workers in Cohorts 3 and 4.

Expanded Networks: Targeted organizations outside their existing networks to increase the number of organizations enrolled in the program and the diversity of the industry of organizations involved.

Improved Marketing: Developed a marketing plan. Advertised on Facebook for a longer period of time and started earlier. Identified other events and/or webinars and “piggybacked” or joined collaborative forces with existing groups and events to further promote the WoW program. Leveraged the stories, videos, and interviews of organizations in Cohort 1 to help recruit more organizations for Cohort 2 and 3. Tapped into an organization’s motivation to participate aside from funding.

Employers Participating in the Program

Across all four cohorts, 204 of 208 applicants were eligible and accepted into the WoW program. Each cohort's program lasted approximately 12 months, including follow-up data collection and reporting, and was scheduled between November 2015 and November 2017:

Cohort 1: November 2015-November 2016,

Cohort 2: April 2016-May 2017,

Cohort 3: July 2016-October 2017, and

Cohort 4: October 2016-November 2017.

Some employers started in one cohort but shifted to a later cohort that better fit their organizational needs in order to complete the program.

Response rates of participating organizations to the various tools and surveys administered by the program varied, as shown in Table 2.

Table 2. Employer participation in WoW program stage

Data collection tool	Number of Employers that administered or completed
On-Boarding Survey	169
Baseline Needs and Interests Survey	161
Environmental Scan	157
Worksite Wellness Action Plan	138
Follow-up Needs and Interests Survey	102
Worksite Wellness Evaluation Report	93
What's Next Survey	83

Most of the participating organizations were in the sectors of Healthcare and Social Assistance (41%), Education (12%), and Public Administration (8%) (Table 3). This is generally consistent with Massachusetts' predominant areas of economic activity. Notably, under-represented sectors among program participants were Construction (comprising about 10% of small Massachusetts establishments), Wholesale Trade (about 5%), Retail Trade (14%), and Professional and Technical Services (13%) (US Census 2015). The lower participation rates for these sectors are not surprising in light of work process characteristics in these sectors. For example, construction work by definition does not have a fixed workplace or a stable workforce, so the physical conditions would not support provision of new facilities or group activities, and the incentive for investing in employees' long-term health would be low. Wholesale and retail trade companies, to some extent, feature a high degree of night shift work in shipping and receiving, which similarly would limit access to facilities and to wellness trainers or coaches.

Across four cohorts, 52% of participating organizations were small ones with 200 or fewer employees (Table 3), a priority target of the program. The median size was 195 employees (full-time and part-time combined). Later cohorts tended to have larger organizations and a higher proportion of salaried employees. The organizations that completed the first three steps in the process - application, onboarding survey and Needs and Interests survey - represented over 70,500 employees. Employers estimated that the average annual employee turnover rate was about 40%, of which three-quarters of those leaving did so voluntarily.

According to the demographic data from the employers, the total workforce included 64% women, 62% non-Hispanic Whites, and 25% with only a high school education or GED or lower (Table 4). Nearly one-half were age 45 or older. Languages spoken by workers at any of these organizations, other than English, included Spanish, Haitian Creole, Portuguese, French, Mandarin Chinese, Japanese, Laotian, and Vietnamese (in descending order of frequency).

About 58% of the total workforce comprised hourly wage workers. Of particular note, in light of the program goals, is the fact that two-thirds of the participating employers indicated that they had at least some low-wage workers, defined as those receiving an hourly wage of not more than \$13.50 per hour. About two-thirds of employers reported no workers with union representation, while nearly 40% had at least some employees covered by collective bargaining agreements. Only two organizations in Cohort 1 indicated that their employees were compensated on any type of incentive system (about one-fourth of the workforce in each case).

Most employees worked standard day-time shifts, but about 17% had evening, night or rotating shift assignments. These schedules would potentially make it more difficult for workers to participate in scheduled wellness activities, whether on or off-site.

Table 3. Organizational characteristics of participating organizations (Cohorts 1-4*)

	ALL ACCEPTED (n=204)	SUBMITTED OBS (n=169)	SUBMITTED OBS and ES (n=157)
Industry sector	% (n)	% (n)	% (n)
Agriculture, forestry, and fishing	0.5% (1)	0	0
Arts, entertainment and recreation	7.4% (15)	8.9% (15)	9.6% (15)
Administrative & Support Services	1.0% (2)	0	0
Construction	3.4% (7)	3.2% (7)	3.8% (6)
Education	11.8% (24)	13.6% (23)	14.0% (22)
Finance and insurance	3.4% (7)	3.0% (5)	3.2% (5)
Health care and social assistance	40.7% (83)	39.6% (67)	40.8% (64)
Information	1.0% (2)	1.2% (2)	1.3% (2)
Manufacturing	4.9% (10)	4.1% (7)	2.6% (4)
Other services	5.4% (11)	6.5% (11)	5.7% (9)
Professional services	5.9% (12)	5.9% (10)	6.4% (10)
Public administration	8.3% (17)	7.1% (12)	7.0% (11)
Real estate, rental, and leasing	2.9% (6)	3.0% (5)	3.2% (5)
Retail trade	1.1% (2)	1.2% (2)	0
Transportation and warehousing	1.5% (3)	1.8% (3)	0
Wholesale Trade	0.5% (1)	0	0
Type of organization			
For-profit	25.5% (52)	23.1% (39)	21.0% (33)
Non-profit	60.3% (123)	62.7% (106)	65.6% (103)
Public sector (government)	14.2% (29)	14.2% (24)	13.4% (21)
Workforce size			
Small: 200 or fewer workers	52.0% (106)	51.5% (87)	49.7% (78)
Medium: 201 - 500 workers	27.5% (56)	27.8% (47)	29.3% (46)
Large: over 500 workers	20.6% (42)	20.7% (35)	21.0% (33)
	Mean (SD)	Mean (SD)	Mean (SD)
Estimated employee turnover (%)	41% (41%)	43% (42%)	45% (42%)
Existing wellness program score (0-20)	6.9 (4.5)	6.8 (4.4)	6.7 (4.3)
Program readiness score (0-28)	22.0 (4.6)	22.6 (3.9)	22.6 (3.9)

*Data obtained from the WoW program application.

OBS = On-boarding Survey; ES = Environmental Scan; SD = Standard deviation.

Table 4. Workforce demographics of 169 WoW enrolled organizations

Workforce characteristics	Mean (SD)*
Age group (year)	
Under 18 (%)	3% (12%)
18-34 (%)	35% (21%)
35-44 (%)	20% (10%)
45-54 (%)	21% (9%)
55-64 (%)	18% (12%)
65+ (%)	6% (6%)
Gender (% female)	64% (23%)
Race/ethnicity	
Hispanic or Latino (%)	12% (15%)
Black or African American (%)	15% (20%)
Asian (%)	3% (7%)
White (%)	62% (30%)
Education	
Less than high school (%)	3% (9%)
High school or GED (%)	22% (25%)
Some college or technical school (%)	20% (17%)
College (4 years) (%)	36% (21%)
Post-graduate/advanced degree (%)	20% (20%)
Workforce levels	
Hourly wage workers (non-exempt) (%)	58% (28%)
Salaried, non-managerial (exempt) (%)	25% (26%)
Salaried managers (exempt) (%)	19% (19%)
Employees on day shift (%)	83% (24%)
Employees routinely working > 40 hours/week (%)	17% (23%)
Workforce with use of computer for survey completion and/or access to wellness program resources (%)	83% (29%)
Percent of employers unionized **	
No unionized employees	65%
At least some unionized employees	30%
Proportion of low-wage employees (earning ≤ \$13.50/hr)	% (no. employers)
None	33% (55)
1% - 25%	43% (72)
26% - 50%	12% (21)
51% - 75%	7% (12)
76% - 100%	5% (8)

* Mean and standard deviation (SD) show the distribution of reported percentages from each of the 169 enrolled organizations.

** At least some employees covered by union collective bargaining agreement.

Seed Funding Payments and MA Wellness Tax Credit Applications

Each participating employer was eligible to receive up to \$10,000 in seed funding from the WoW program, a percentage of which had to be matched by the employer. Seed funding was dispersed in 3 separate payments of \$2,000, \$7,000, and \$1,000, contingent on achieving defined benchmarks at each point in time. These benchmarks were appointing a Wellness Champion and committee members, attending/completing training, submitting and updating a Worksite Wellness Action Plan, conducting the employee Needs and Interests surveys, and submitting a Worksite Wellness Evaluation Report. For the third payment, employers could choose to receive half of the full payment for completing just one of the two benchmarks.

In total, 147 organizations received \$1,327,000 in seed funding (Table 5). Total payments for each organization ranged from a minimum of \$2,000 to the maximum of \$10,000. While only 8% of employers received only the first seed funding payment, slightly more than half of the organizations received the maximum seed funding payment. Of those that received the first seed funding payment, 92% and 63% received the second and third payments, respectively. The low number of organizations receiving the third payment may be reflective of the activities tied to the payment not being of value to employers, as they were primarily related to evaluation of the WoW program.

Table 5. Seed funding payments dispersed to WoW participating organizations

	Payment #1 (\$2000)		Payment #2 (\$7,000)		Payment #3 (\$500 or \$1,000)		Total Payments
	No.	Amount	No.	Amount	No.	Amount	Total
Cohort 1	19	\$38,000	19	\$133,000	13	\$11,500	\$182,500
Cohort 2	41	\$82,000	37	\$259,000	26	\$26,000	\$367,000
Cohort 3	31	\$62,000	28	\$196,000	19	\$17,000	\$275,000
Cohort 4	56	\$112,000	51	\$357,000	34	\$33,500	\$502,500
Total	147	\$294,000	135	\$945,000	92	\$88,000	\$1,327,000

The Massachusetts Wellness Tax Credit Incentive was designed to encourage small Massachusetts workplaces to implement employee wellness programs by offering a state tax credit of up to 25% of the cost of a qualified wellness program (\$10,000 maximum) to businesses that employ 200 or fewer employees. Three-quarters of employers participating in WoW were non-profit or public-sector agencies and thus not eligible for the Tax Credit. Of the participating sites that were eligible, two applied for the state tax credit in calendar year 2016 and four applied in 2017. All tax credit applications were approved.

Employer Attrition from WoW Program

Sixty-eight organizations across the four cohorts voluntarily withdrew from the WoW program before its end. Of these, 32 organizations left after being accepted to but prior to enrolling in the program and 36 organizations withdrew after enrolling in the program. Most of these organizations alerted WoW program staff to their intention to leave the program. WoW

program staff were able to learn from Wellness Champions at 44 of these organizations why they decided not to continue with the program (Table 6). Of the 68, 16 employers were deemed by WoW program staff to have left the program on the basis of their lack of program engagement over a prolonged period.

Table 6. Reasons for withdrawal from WoW program (number of organizations)

Reason Category	Applied But Did Not Enroll	Enrolled But Later Withdrew	Total
Timing not right, other priorities	7	8	15
Lack of staff resources	7	4	11
Lack of leadership support	3	2	5
Staff changes	3	2	5
Program too much work	3	2	5
Other	3	0	3
Unknown	6	18	24
Total	32	36	68

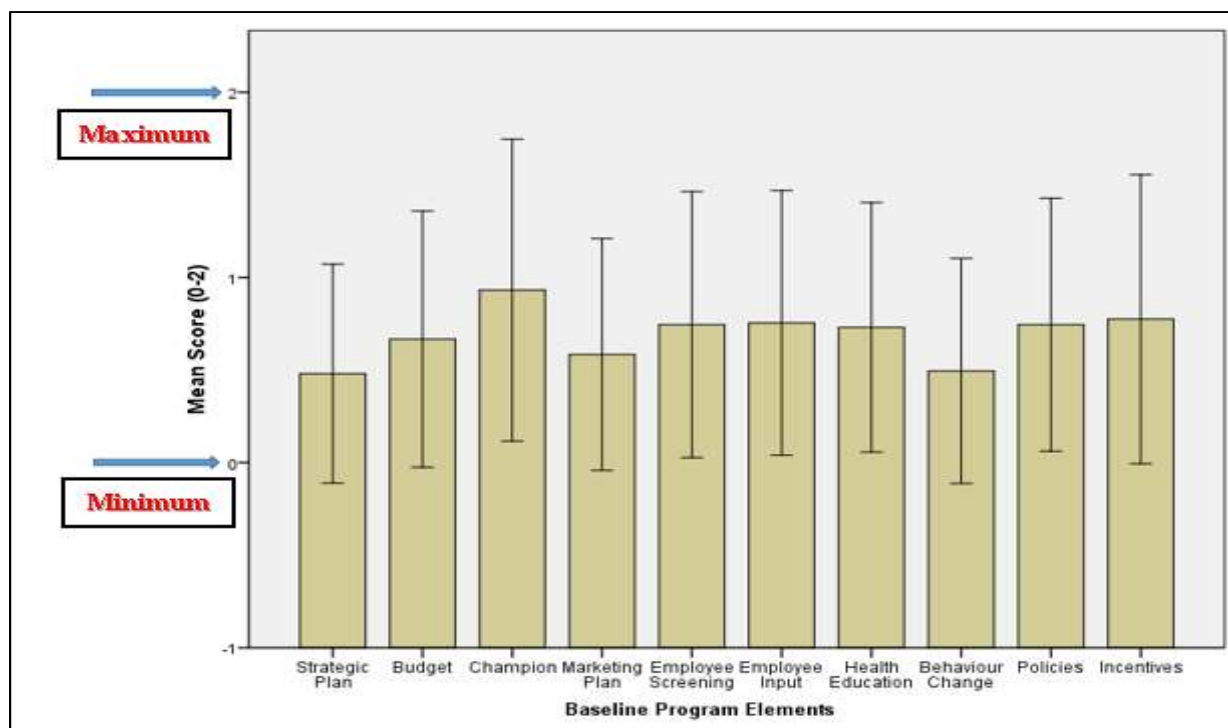
For 15 employers, most of which withdrew early (after the acceptance or on-boarding stages), the timing of the program was determined to not be a good fit with organizational priorities at the time of WoW program involvement. These employers were focused on other initiatives or were entering a busy season, leaving them unable to focus on developing a wellness program. Another common reason, cited by 11 employers, was a lack of staff resources to absorb WoW program activities in addition to regular duties. Staffing changes at several employers necessitated program withdrawal, primarily because the Wellness Champion or another program support left their role and a replacement was not identified. Additional reasons for program withdrawal cited by employers were a lack of leadership support for WoW participation, such as not providing resources or not supporting staff time being devoted to program development, and that the program required too much work.

We analyzed organizational characteristics in relation to likelihood of withdrawing from the WoW program using logistic regression. In a parsimonious multivariable regression model, higher likelihood of withdrawal was associated with more than 10% of workforce being racial or ethnic minority (OR=3.49, p=0.024), higher percent of workers with hypertension (OR=1.14 per 1% increase, p=0.024), and higher percentage of workers having more control of over hours worked and overtime than average level. Lower likelihood of withdrawal was related to a higher percentage of workers having visited a primary care physician in the past year; a higher percentage of employees perceiving that their employers consider employee health, safety and well-being to be important; and a higher percentage of workers ready to lose weight. The data suggest that the program sustainment is somewhat predictable and influenced by both organizational and workforce characteristics. The program appears more likely to be sustained when an organization has stronger leadership support, more motivated employees, and greater needs for an onsite wellness program.

Baseline Employer Programs and Policies

At the time that they enrolled in the WoW program, 48% of participating employers offered no formal wellness program, and they had few policy or environmental supports to encourage employee physical activity, nutrition, or tobacco-free lifestyle, or to support work/life balance (Figure 2). The total “Existing Wellness Program” score averaged 6.8, or well below the mid-point of the scale (range 0-20 possible points) (Table 7). Thus, the organizations accepted into the program had very few supports already in place for offering worksite wellness program activities and were good candidates for program assistance. Their “Program Readiness” scores were slightly more favorable, averaging about 14 on a scale from 0 to 28 (Table 7). This demonstrated that organizational leaders were willing to allocate staff time and other resources to initiate and sustain an employee wellness program.

Figure 2. Baseline scores for existing wellness program elements, as reported in employers’ program applications



The Environmental Scan (ES) surveys were completed by 157 organizations. Among employers who provided this information, most had at least some baseline policies and environmental supports in each of the seven domains or content areas (Table 7). However, scores for baseline policies and environmental supports before beginning the program were rather low compared to the number of items that were covered in the ES instrument. Except for occupational health and safety, which is covered by legal requirements for most employers, the average scores were below one-third of the possible maximum values. Thus, there was substantial opportunity for improvement in all of these areas. There were only negligible differences between the scores of these four cohorts.

Table 7. Descriptive data on 157 employers' workplace health, wellbeing and safety policies and facilities as assessed using the Environmental Scan Survey

Domain (Max)		Cohort 1 (n=25)	Cohort 2 (n=43)	Cohort 3 (n=39)	Cohort 4 (n=50)	Total (n=157)
Physical Activity (42)	Mean (SD)	9.4 (5.0)	10.7 (5.7)	11.5 (6.8)	15.5 (9.2)	12.2 (7.5)
	Range	2-21	1-27	1-31	1-31	1-31
Nutrition (46)	Mean (SD)	12.3 (4.4)	12.5 (4.0)	12.8 (4.5)	12.1 (4.7)	12.4 (4.4)
	Range	6-25	7.5-23	7-23	2-26	2-26
Tobacco and Substance Abuse (25)	Mean (SD)	6.7 (2.8)	6.9 (3.4)	6.8 (3.1)	6.4 (3.0)	6.7 (3.1)
	Range	3-15	0-15	1-12.5	1-16	0-16
Supports for Parents and Families (16)	Mean (SD)	3.8 (3.8)	4.0 (3.1)	4.5 (3.2)	3.8 (2.9)	4.0 (3.2)
	Range	0-15	0-11	0-13	0-13	0-15
Stress and Mental Health (15)	Mean (SD)	6.0 (2.2)	6.1 (2.3)	7.0 (2.6)	6.2 (1.9)	6.3 (2.3)
	Range	2.5-10	2-11	2-13	3-12	2-13
Medical and Chronic Conditions (7)	Mean (SD)	1.3 (1.2)	1.4 (1.3)	1.5 (1.4)	1.8 (1.2)	1.5 (1.3)
	Range	0-4	0-5	0-5	0-5	0-5
Occupational Health and Safety (11)	Mean (SD)	5.0 (3.1)	5.6 (3.7)	5.4 (3.2)	5.4 (3.2)	5.4 (3.3)
	Range	0-11	0-11	0-11	0-11	0-11

Max = Maximum of possible total number of points. SD = Standard deviation

Employer Wellness Programs and Policies

A total of 138 Action Plans were submitted by enrolled organizations. In Cohort 1, organizations were asked to name the health goals, and to undertake three to six activities for each of the targets (9-18 activities in total). However, through the experience of providing technical guidance to employer Wellness Champions, it became apparent that program planning to address three goal areas was somewhat unwieldy and too ambitious for new trainees. The time required of champions and their internal wellness committees was not in line with available internal resources to carry out interventions in three areas simultaneously, especially in the one-year time period. Therefore, in Cohorts 2-4, participating organizations were asked to select one health goal as a target for their wellness programs, which was more in line with the available resources. This allowed organizations to focus their wellness activities more deeply, using a range of strategies to make an impact on the selected topic.

Employers selected their health goal based on a defined assessment process which collected information about existing organizational supports for health behaviors, and employees' self-reported health and program interests. Four health goals emerged as the most predominant goals for WoW employers. These were to increase physical activity, improve healthy eating, achieve a healthy body weight, and reduce or manage stress. These goals were

well aligned with the health needs and program interests that were identified from the surveys of individual employees at the same organizations (Table 11). However, stress reduction was one of the high interest areas among employees, whereas this topic was selected as a primary focus only for 7% of organizations. It's possible that organizations chose an initial wellness focus area that they believed to be less complex to address (such as physical activity) with the intention of adding stress reduction interventions later.

The types of adopted interventions varied by size and type of the participating organizations (Table 8). Smaller sized organizations tended to more likely to adopt interventions to increase awareness and environment support.

Table 8: Types of adopted interventions by organization type and size

	Intervention type			
	Policy	Environ- ment	Behavioral change	Awareness
Organization size				
Small (<=199), n=70	82.9%	90%	100%	95.7%
Medium (200-499), n=40	72.5%	62.5%	97.5%	87.5%
Large (>500), n=28	74.3%	82.1%	96.4%	78.6%
P-value for testing equal proportions	0.123	0.002	0.329	0.034
Organization type				
Education, n=14	57.1%	100%	100%	92.9%
Government, n=13	76.9%	100%	92.3%	96.9%
Non-profit, n=85	76.5%	74.1%	98.8%	91.8%
For-profit, n=26	84.6%	80.8%	100%	88.5%
P-value for testing equal proportions	0.282	0.033	0.243	0.404

The most common wellness activities planned by employers for each of the topic areas are outlined in Table 9. Raising awareness about community-based resources was a common strategy for stress reduction, healthy eating and physical activity. Many organizations that focused on improving diet introduced healthy food standards for organizational meetings and events. Step tracking competitions (using pedometers) and walking clubs (and promoting nearby walking routes) were extremely popular strategies for encouraging more physical activity during the work day.

Table 9. Most frequent wellness activities planned by 138 enrolled employers *

Rank	Stress Reduction		Healthy Eating		Physical Activity		Weight management	
	Activity	n	Activity	n	Activity	n	Activity	n
1	Promote community stress reduction resources	22	Meeting food policy	32	Promote community physical activity resources	62	Weight Watchers or other on-site weight program	22
2	Stress management training, demo, and/or practice	19	Promote community healthy eating resources	31	Step tracking competitions	48	Free/subsidized body composition measurement for overweight employees	12
3	Designated quiet space	13	Workshop on nutrition and healthy eating	26	Walking Club	41		

* Data obtained from Worksite Wellness Action Plans

Wellness Champions received specific training and guidance to plan activities that span multiple strategies. Overall, Wellness Champions complied with program guidance by developing plans that included a mixture of activity types such as establishing long-lasting organizational policies and environmental supports for adopting healthy behaviors, and on providing skill-building opportunities either on-site during the work day or in the local vicinity. Activities that encourage social connections between employees as they engage in health and wellness activities were commonly reported, including walking clubs, fitness classes and challenges, farm shares, community gardens, and yoga classes (Tables 12- 14). Of note, the Department of Public Health explicitly disallowed employers from using financial penalties as a strategy in their plans to enforce worker participation in organized activities.

Environmental change was most frequently achieved toward the goals of increasing activity during the workday and dietary improvement. Many organizations introduced point of decision prompts, movement reminders, exercise equipment/space, meeting food policies and provision of healthier food options at the worksite (Tables 12 and 13). To address the goal of stress reduction, several organizations committed to addressing work organization factors such as work overload and social support in the workplace, although few specifics were provided. These factors related to job stress are important contributors to chronic disease, and represent a progressive “Total Worker Health” approach to improving workplace health through primary prevention, according to the Centers for Disease Control and Prevention.

Overall, the activities implemented tended to be policy-related and awareness promotion rather than social and physical environmental supports and behavioral interventions.

Employees' Baseline and Follow-Up Health Needs and Interests

Employees from 161 organizations completed 17,341 Needs and Interests Surveys at baseline, whereas employees from 102 organizations completed 7,674 Needs and Interests Surveys at follow up. Of those, a total of 13,995 individuals completed at least half of the survey at baseline and 5,441 individuals completed at least half of the survey at 12-month follow-up. All remaining results are presented only for this subgroup of respondents who answered one-half or more of the survey questions.

Approximately 99% of the surveys were completed online, and 0.3% of surveys were completed in Spanish. Response rates for the Needs and Interests Survey averaged 32% across the cohorts at baseline and 22% at follow up. Overall, the smaller the organization, the higher the response rate. Among the different types of organizations, response rates were highest for the for-profit organizations in both the baseline and follow up surveys (see Appendix 1).

Chronic conditions inquired about were poorly controlled hypertension, diabetes, dyslipidemia, and depression. About 80% of participants reported one of these chronic conditions in either survey (Figure 3). The preventive care indicators were: seeing primary care physician in the past year, having blood pressure checked in the past two years, and having cholesterol checked in the past five years. About three quarters of respondents reported all three of these indicators (Figure 4). Lifestyle risk factors included obesity, diet, exercise, tobacco use, binge drinking, sleep, stress, and depression. Fewer than 20% of participants reported 0-2 of these 9 risks at both the baseline and follow-up surveys, while over 30% reported 5-9 of these risk factors (Figure 5).

The one-year follow up data showed promising trends in multiple health indicators. Prevalence of hypertension decreased from 4.5% at baseline to 4.1% at 12 months ($p=0.053$), overweight or obesity from 62.4% to 61.0% ($p=0.09$), not meeting the AHA recommended amount of daily exercise from 60.3% to 58.0% ($p<0.01$), unhealthy eating from 85.9% to 84.3% ($p<0.01$), binge drinking from 38.6% to 34.5%, less than 6 hours of sleep nightly from 31.7% to 30.3% ($p=0.06$), and stress affecting health from 21.2% to 19.9% ($p=0.03$). Percent of employees with 5 or more lifestyle risk factors decreased from 34% to 30.2% ($p<0.01$).

The total number of risk factors indicated by employees ranged from 0 to 15 at baseline, and 0 to 14 at follow-up. The median number at each time point was 4. Risk categories were calculated based on the total number of risk factors an individual had. Individuals with less than 4 risk factors were assumed to be low risk. Individuals with 4-6 risk factors were defined as moderate risk, and individuals with more than 7 risk factors were defined as high risk. At follow-up, the percentage of individuals defined as "low risk" increased marginally, while the percentage of "high risk" individuals decreased also very slightly (Figure 6).

Table 10. Health risk factors reported by WoW employees through the employee Needs and Interests surveys (Cohorts 1-4)

	Baseline n (%)	Follow-up n (%)	Unadj. P †	Adj. P ††
Chronic Conditions				
Diabetes	427 (3.2)	156 (2.9)	0.408	0.183
Hypertension	614 (4.5)	220 (4.1)	0.235	0.053
High Cholesterol	1258 (9.4)	459 (8.8)	0.152	0.123
Depression	1112 (8.5)	436 (8.5)	0.982	0.884
Preventive Care				
Have had BP checked in past 2 years	13526 (97.0)	5241 (96.3)	0.026	0.026
Have had cholesterol checked in past 5 years	13166 (94.2)	5016 (92.2)	<0.001	<0.001
Have seen PCP in the past year	11051 (79.5)	4045 (74.3)	<0.001	<0.001
Lifestyle Risk Factors				
Unhealthy weight (overweight or obese)	8636 (62.4)	3258 (61.0)	0.078	0.09
Insufficient physical exercise*	8325 (60.3)	3112 (58.0)	0.003	0.003
Not eating ≥5 servings of fruits/veg. daily	11986 (85.9)	4566 (84.3)	0.006	0.005
Not eating ≥3 servings of whole grain daily	10757 (77.1)	4261 (78.8)	0.01	0.048
Current tobacco use	1251 (8.9)	430 (7.9)	0.021	0.002
Consumed 5 or more (4 for women) alcoholic drinks in 1 sitting in the past 6 months	5379 (38.6)	1866 (34.5)	<0.001	<0.001
Getting <6 hours of sleep nightly	4437 (31.7)	1645 (30.3)	0.051	0.064
Health affected by stress	2958 (21.2)	1080 (19.9)	0.043	0.026
Feeling depressed most of the time	666 (4.8)	228 (4.2)	0.082	0.168

* The American Heart Association (AHA) recommends ≥30 minutes of moderate aerobic activity 5 days per week OR ≥25 minutes of vigorous aerobic activity 3 days per week plus moderate to high intensity strength training 2 days per week.

† P-value from Chi-square test for the comparison between two proportions.

†† P-value from logistic regression model with adjustment for demographic features, organization type (education, government, non-profit, profit), and company size.

Figure 3. Distribution of chronic conditions, based on WoW employees completing the individual Needs and Interests surveys (Cohorts 1-4).

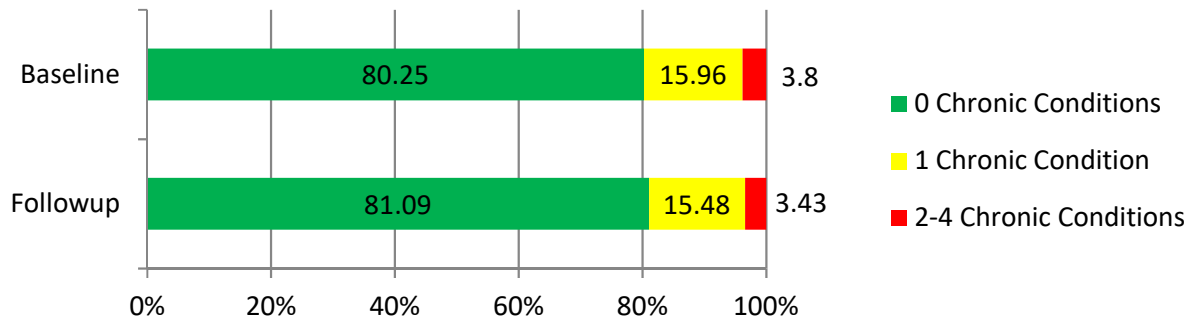


Figure 4. Distribution of preventive care risk factors, based on WoW employees completing the individual Needs and Interests surveys (Cohorts 1-4).

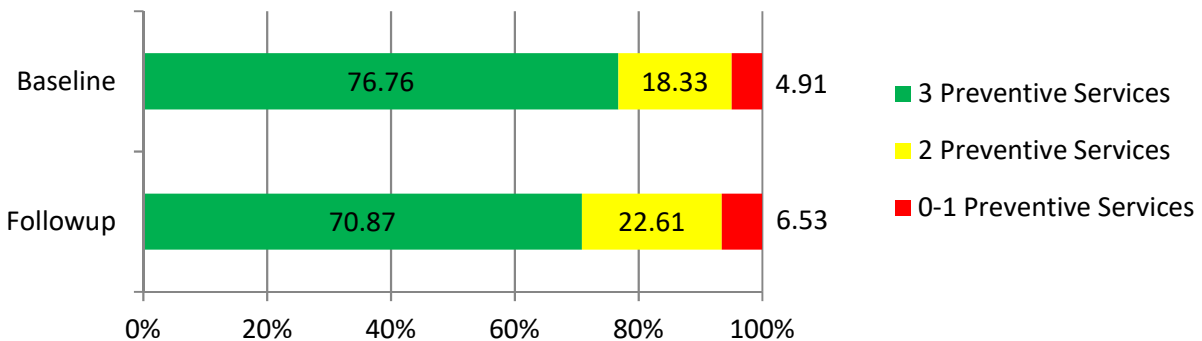


Figure 5. Distribution of lifestyle risk factors, based on WoW employees completing the individual Needs and Interests surveys (Cohorts 1-4).

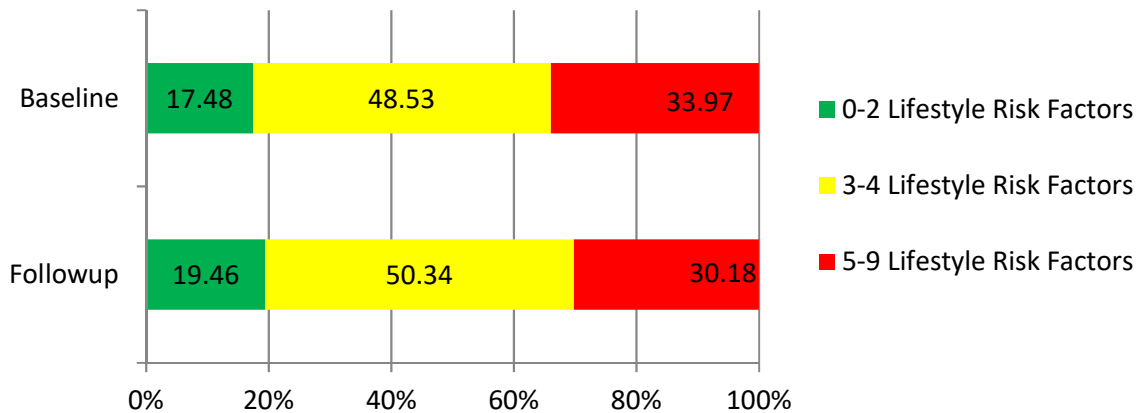
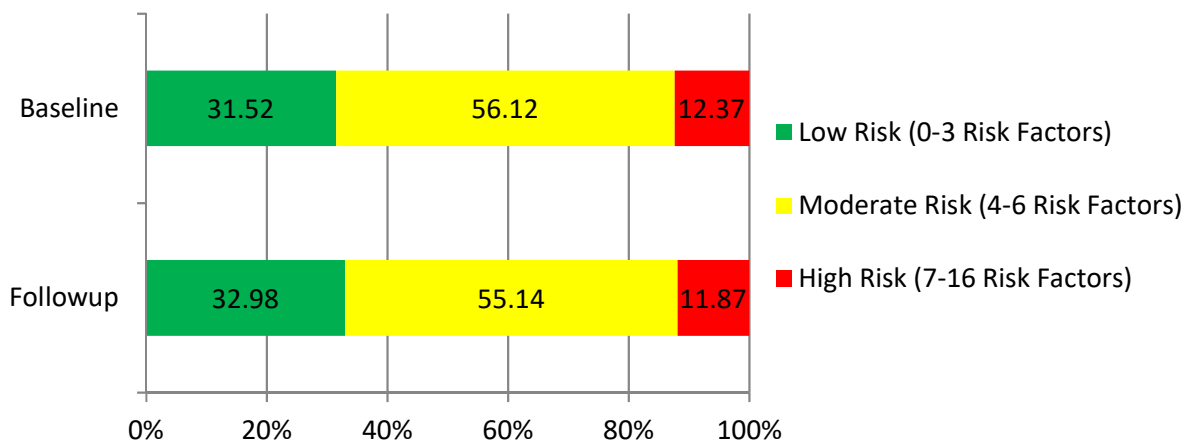


Figure 6. Distribution of health risk scores, based on WoW employees completing the individual Needs and Interests surveys (Cohorts 1-4).



Baseline Employee Wellness Program and Policy Interests

Among employees who responded to the survey, 79% stated that their employers already provided them with a tobacco-free workplace. The majority of employees also stated that their employers offer them the opportunity to be physically active, eat a healthy diet, and manage stress (68%, 64% and 53%, respectively).

Employees further expressed interest in new wellness activities that their organizations might offer through the WoW program. They indicated that they were most likely to participate in activities to become more physically active (75%), eat healthier diets (52%), and manage stress (67%) (Table 11, column A).

Regarding specific policy or environmental supports for healthier behaviors, employees were most interested in tobacco-free grounds (71%), extending the current MA smoke-free workplace law to include exterior grounds. They were also interested in discounted gym memberships (68%), flexible work schedule (66%), and paid time for physical activity (60%).

Employees also expressed readiness to change their behaviors to become healthier (Table 11, column C). The area with the most endorsements was in being ready to make changes to reduce stress (51%). Other areas in which employees were especially ready to change were to lose weight or maintain a healthy weight (47%), to be physically active (42%), and to eat a healthy diet (40%).

If a program of interest was offered to them, 64% of respondents said they would be willing to participate during personal time, with 55% indicating they would prefer to participate after work. Smaller proportions indicated that the best time for them to participate would be at lunch time, before work and on weekends (32%, 29% and 25% respectively).

Table 11. Alignment of employer WoW activities with employee health needs and interests

	A. Preferred types of activities to participate		B. Interested types of policies and environmental supports		C. Ready for change		D. Employers' selected program goals	
	n	%	n	%	n	%	n	%
Healthy eating	7,250	52%	9,457	68%	5,609	40%	16	12%
Physical activity	10,506	75%	11,277	81%	5,800	42%	71	51%
Stress reduction	9,426	67%	9,894	71%	7,112	51%	9	7%
Healthy weight	5,133	38%			6,550	47%	32	23%

A-C: Employee interest in possible wellness activities, policy and environmental supports and readiness to make health behavior changes (n=13,995 individual responses to Needs and Interests survey, from 163 organizations in Cohorts 1-4).

D: Planned employer activity targets (n=138 organizations submitting Action Plans in Cohorts 1-4).

Health risks and wellness interventions by topic

In this section, summary results for specific wellness topics are presented for the four most common wellness program targets of Physical Activity, Healthy Eating, Weight Management, and Stress Reduction. Results include key aspects of employee self-reported health risk factors, readiness to change health behavior, program interests, and employer planned program activities and approaches. A summary table of planned versus implemented activities is provided in Appendix.

Topic 1: Physical Activity

60% of employee respondents reported low physical activity at baseline.

51% of organizations adopted Physical Activity as a primary focus.

93% of organizations implemented at least one Physical Activity intervention.

Baseline score of policies and environmental supports for Physical Activity had an average of **12** and ranged from **1** to **31**, out of possible total of 42 points.

The American Heart Association recommends at least 30 minutes of moderate aerobic activity 5 days per week or ≥ 25 minutes of vigorous aerobic activity 3 days per week plus moderate to high intensity strength training 2 days per week. Overall, 60% of employees in WoW organizations reported not getting the recommended amount of daily physical activity at the start of the program; this percentage was reduced slightly at the end of the 12-month program period (Figure 7).

The percentage of employees who reported being ready to change their activity level was 42% at baseline, and increased slightly to 46% at the end of the program. About three quarters of employees said they would be likely to participate in physical activity workplace activities and about 80% expressed interest in policies to support increasing physical activity while at work. There was a sizable increase in the proportion of employees who said their employers provide opportunities for physical activity (68% at baseline vs 84% at follow up). This increase in employees' perceptions of employer support of physical activity presumably is due to a recognition of increased employer wellness programming.

At the employer organization level, low physical activity was the most common health risk selected as a primary focus of WoW employer wellness programs, with 51% of employers (71 of 138 total) choosing this topic as their primary focus, with 93% of employers offering some type of physical activity interventions (Figure 8). Health benefits of physical activity have been well documented, including weight management, strength and balance, stress reduction, prevention of Type II diabetes high blood pressure.

Physical activity interventions represented the largest share (56%) of all interventions implemented by employers (Table 12). In accordance with the guidance provided by the WoW training program, organizations planned a mixture of intervention types such as policy changes,

environmental support, behavior change, or awareness. Two thirds (67%) of the interventions implemented were heavily focused on behavior change and awareness/education activities such as promoting walking routes, on-site fitness classes and steps challenges. Other common physical activity interventions included awareness activities on the benefits of being active and local community resources, creating workplace design supports such as stair walking prompts and automated movement reminders, on-site group exercise activities and flexible work schedule policies.

Figure 7. Employee-reported rates of insufficient physical exercise, readiness and opportunities to increase physical activity at baseline and follow up (12 months)

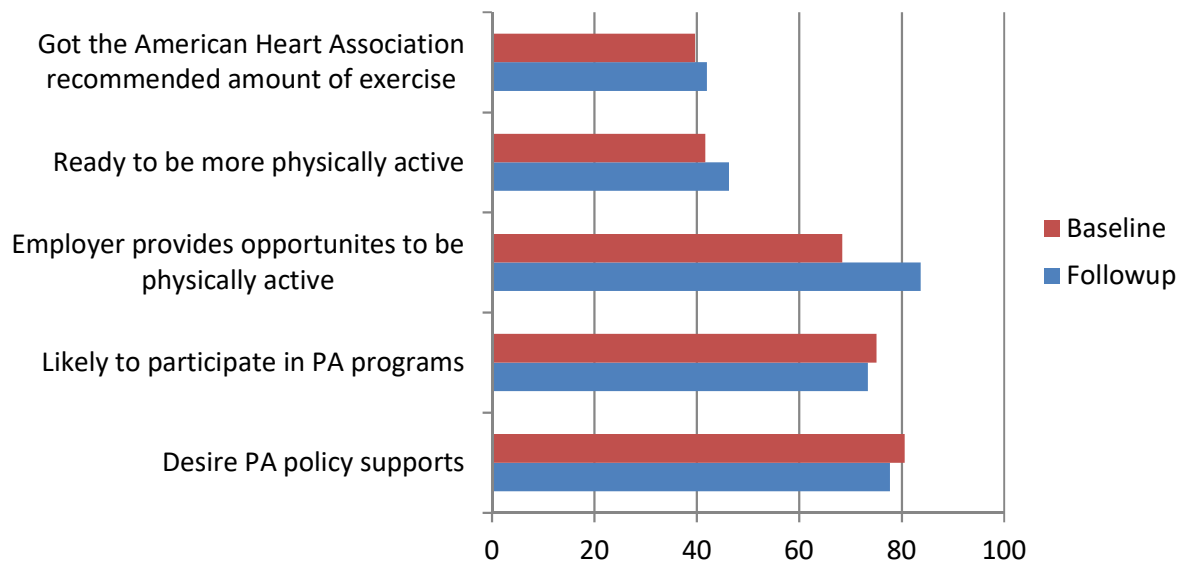
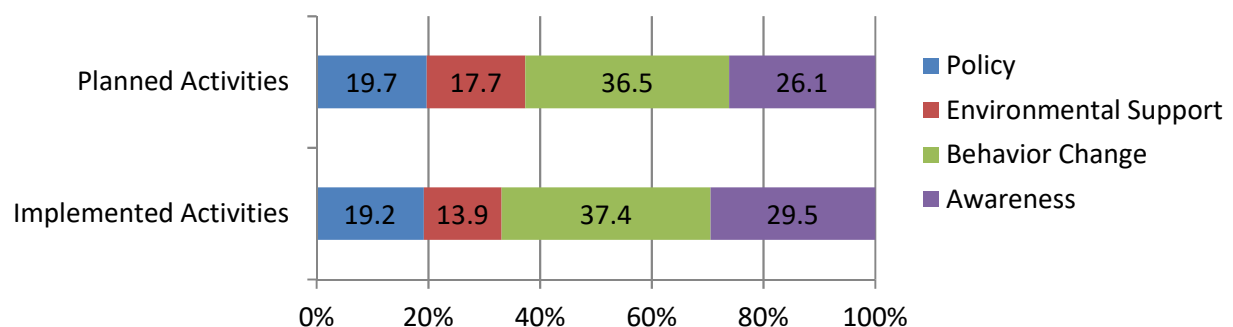


Figure 8. Types of planned and implemented* physical activity interventions



*Planned interventions were reported by employers in a “Worksite Wellness Action Plan” 4-6 months after enrolling in the program. Implemented activities were activities reported by employers approximately 10 months after enrolling in the program.

Table 12. Planned* physical activity interventions

Intervention Type	Most Common Intervention Activities	Freq.
Provide information / increase awareness of benefits of physical activity	Promote nearby walking routes, provide educational materials on physical activity benefits	163
Space or environment design to encourage physical activity	Point-of-decision prompts, provide active workstations, movement reminders	133
Onsite group classes and/or activities for physical activity	Aerobics and/or strength fitness class, fitness seminars/workshops	101
Policy supports	Meetings will include movement/stretch breaks, flex-time policy to promote physical activity	83
Financial incentives, rewards, challenges	Step tracking competitions, team fitness challenges	73
Team building, social support	Walking club, company sports league	60
Reduce financial barriers to promote physical activity	Discount/free off-site gym membership, promote reimbursement through health plan	59
Individual counseling and coaching	Personal fitness coaching	13

* Data obtained from 138 employers that submitted Worksite Wellness Action Plans

Topic 2: Healthy Eating

86% of employees reported eating less than 5 fruits and vegetables daily at baseline

12% of organizations adopted Healthy Eating as a primary focus

56% of organizations implemented at least one Healthy Eating intervention

Baseline score of policies and environmental supports for Healthy Eating had an average of **12** and ranged from **2** to **26**, out of possible total of 46 points.

The U.S. Department of Agriculture recommends at least 3 daily servings of whole grains and 5 or more servings of fruits and vegetables daily for a healthy diet. At baseline, nearly 90% of employees of participating organizations reported not eating the recommended servings of whole grains, fruits or vegetables (Figure 9). However, only about 40% were ready to change their eating habits and about half of respondents indicated they were likely to participate in healthy eating programs. A little more than two thirds (68%) indicated a desire for health eating policy supports.

While only 12% (16) of employers chose healthy eating as a primary focus of their wellness program, nearly two thirds (56%) implemented at least one healthy eating intervention. Activities undertaken by employers were primarily focused on changes in policy/environment supports (which together comprised 56% of healthy eating interventions) and awareness/education (32% of interventions), with 12% of activities aimed at building practical skill-building for behavior change. Employers implemented about half of their planned behavior change activities than initially planned, possibly shifting more effort to policy change and education strategies. At the end of the program, almost 80% of employees indicated that their employer provided opportunities to eat a healthy diet, an increase of 15% compared to the beginning of the program.

Employers increased access to healthy foods at the workplace by offering onsite farmer's markets or fresh trucks and community supported agriculture programs (Table 13). They also implemented policies requiring healthy foods to be served at meetings and employer-sponsored events. WoW employers raised awareness about healthy eating by sharing information and tips through various avenues, such as monthly newsletters. To increase employees' knowledge and skills, employers held informational workshops or cooking demonstrations at workplaces. Some employers offered financial subsidies or shared the cost of healthy food purchases. Some employers created nutritional wellness challenges to increase healthy food intake or offered one-on-one nutritional coaching.

Figure 9. Employee-reported rates of low healthy eating, readiness and opportunities to increase healthy eating at baseline and 12 months follow up

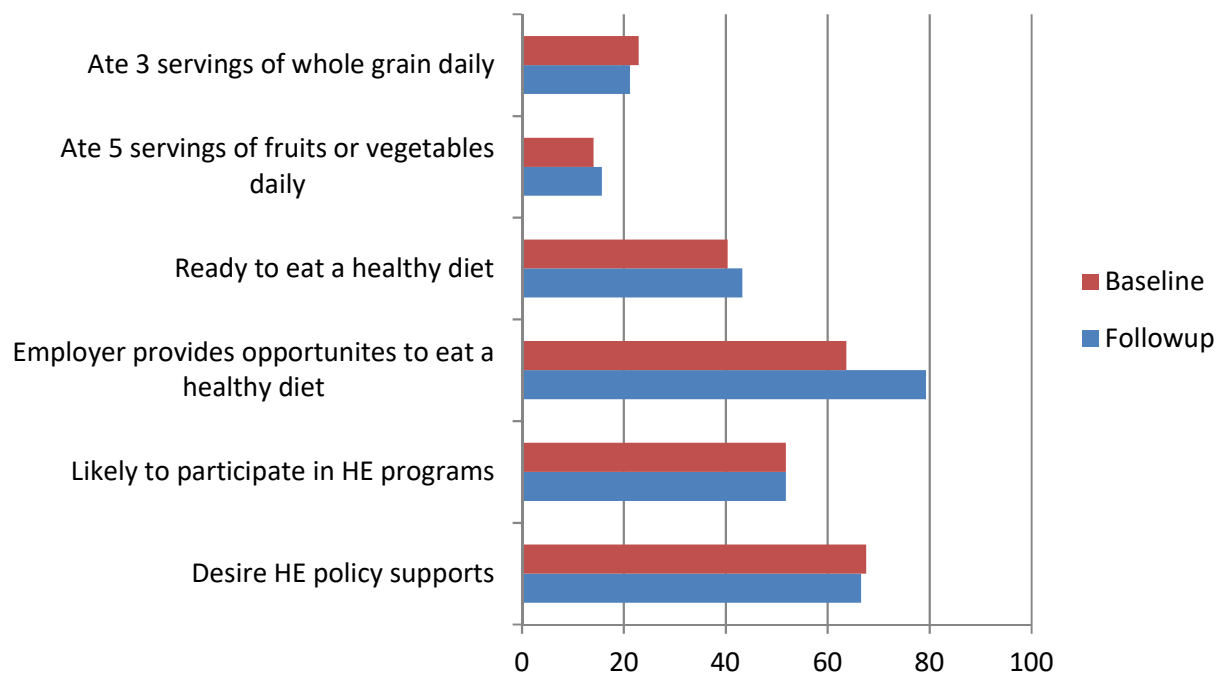


Figure 10. Types of planned and implemented healthy eating interventions

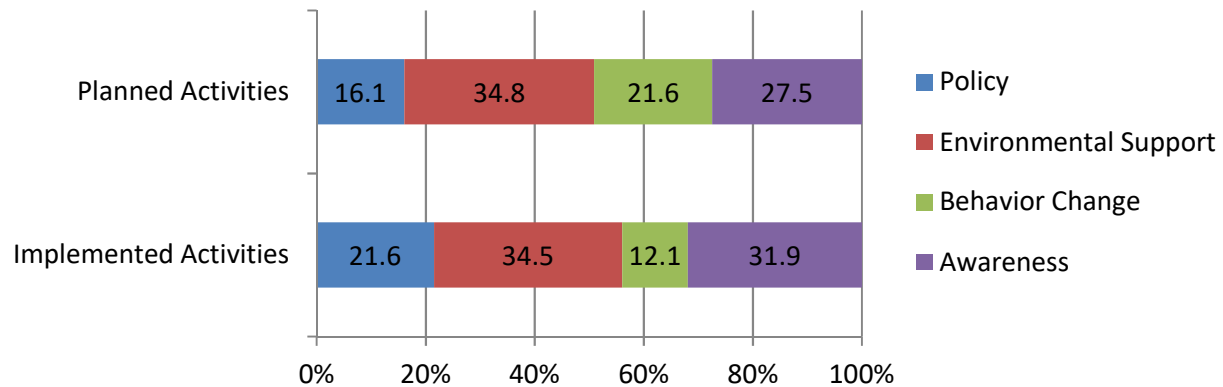


Table 13. Planned* healthy eating interventions

Intervention Type	Most Common Intervention Activities	Freq.
Onsite access to healthy foods	CSA, farmers market, fresh truck	99
Information sharing to raise awareness	Information of where to find healthier food near the workplace, newsletters	66
Onsite group classes and activities for healthy eating	Workshop on nutrition and healthy eating, healthy cooking demo	51
Policy supports	Meeting food policy	32
Reduce financial barriers	Subsidies/cost-sharing of healthier food	18
Financial incentives, rewards, challenges	Nutritional wellness challenges, competitions to reduce sugar intake/eat healthier	11
Individual counseling/coaching for healthy eating	On-site nutritional counseling	9

* Data obtained from 138 employers that submitted Worksite Wellness Action Plans

Topic 3: Weight Management

62% of employee respondents were overweight or obese

23% of organizations adopted Weight Management as a primary focus

89% of organizations provided opportunities for weight management

Both Healthy Eating and Physical Activity interventions are helpful to weight management.

Unhealthy weight (overweight or obesity) is associated with multiple chronic health conditions, including heart disease, cancer, hypertension, and diabetes. In Massachusetts, 24% of the adult working population is overweight or obese (MDPH 2016).

Figure 11 outlines employee-reported risks and program needs collected at baseline and 12 months follow-up. Overall, 62% of employee respondents in participating organizations were overweight or obese, 47% were ready to lose weight or maintain a healthy weight, and 37% would be likely to participate in programs addressing weight management. There was a sizable increase in the proportion of employees reporting that their employers provide opportunities for weight management (77% at baseline vs 89% at follow up). This increase could be explained by increased employer wellness communication and programming during the WoW program period.

Weight management was selected as a priority wellness program focus by 23% of the participating employers (Figure 12). The most common types of interventions planned by employers included activities to enhance healthy eating and physical activity. Employers also offered activities such as free or subsidized body composition assessment (n=12), Weight Watchers (n=9), other on-site weight loss challenges or incentive programs (n=4), and information about local weight loss resources (n=4). Interventions specifically addressing weight management tended to emphasize awareness and behavioral changes to support employee weight loss attempts. While nearly 11% of employers planned to implement Weight Management policies, none had been implemented by the time of the follow-up survey.

Figure 11. Employee-reported rates of weight management, readiness and opportunities to increase weight management at baseline and 12 months follow up

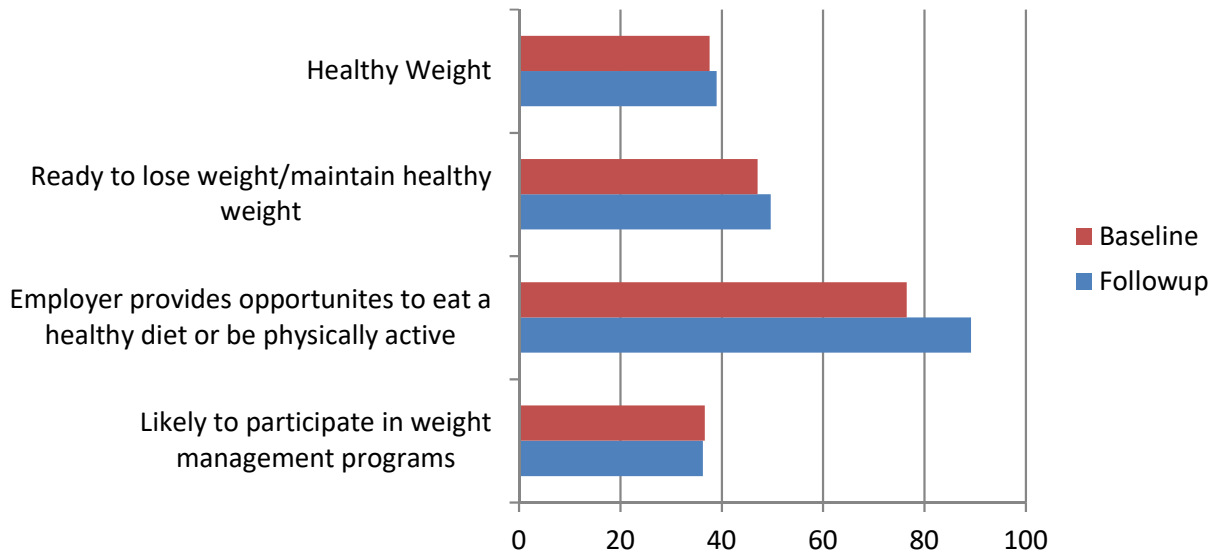
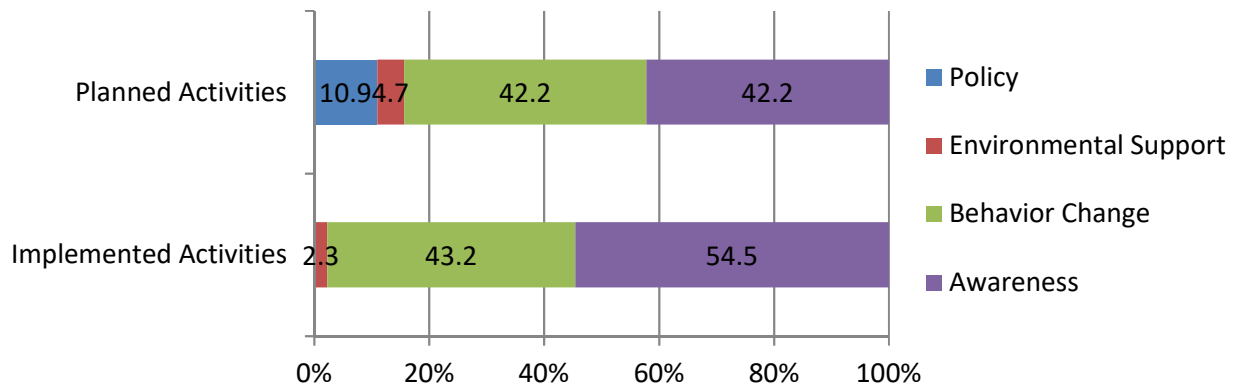


Figure 12. Types of planned and implemented weight management interventions



Topic 4: Stress Reduction

21% of employee respondents reported stress affects their health.

7% of organizations adopted Stress Reduction as a primary focus.

26% of organizations implemented at least one Stress Reduction intervention.

66% employers provided opportunities for stress management.

Baseline score of policies and environmental supports for stress management had an average of **6** and ranged from **2** to **13**, out of possible total of 15 points.

According to the American Psychological Association (2017), money (62%) and work (61%) remain the top common stressors among Americans. Stress (including job stress) increases risk of cardiovascular disease, musculoskeletal injuries, and depression/anxiety. High job stress can interfere with protective health behaviors such as exercise and healthy eating, as well as act as a barrier to participating in workplace wellness program activities. Primary prevention of job stress (reducing exposure to stressors) is distinct from secondary and tertiary prevention (screening, health promotion, treatment). About 1 in 10 employers selected stress as a primary focus of their wellness program.

Figure 13 outlines employee-reported risks and program needs collected at WoW program baseline and 12 months follow-up. Overall, 21% of employee respondents reported that stress affected their health a lot or some of the time in the past year, and 8% reported having been told by a health care provider they have depression or anxiety. Nearly one third (32%) of surveyed employees say they get less than 6 hours of sleep nightly. Sleeplessness can be an outcome of chronic stress; lying awake at night in the past month was reported by 45 percent of Americans in a nation-wide survey on stress.

Among employee respondents, 51% said they were ready to reduce their stress, about two thirds would be likely to participate in stress reduction workplace activities and about 70% expressed interest in policies to reduce stress while at work. There was a sizable increase in the proportion of employees who said their employers provide opportunities for stress management over the course of the WoW program (53% at baseline vs 66% at follow up). This could be explained by increased employer wellness stress reduction programming.

Stress reduction was selected as a primary focus by 7% of participating employers, with 26% of employers offering some type of stress reduction interventions (Figure 14), presumably in recognition of the interplay between stress, health behaviors, and overall well-being. Interventions implemented were heavily focused on awareness (35% of stress reduction activities) and behavior change (40%) to build personal stress management skills. The most common types of stress intervention activities planned by employers included onsite group stress reduction activities such as yoga and meditation classes, and education/information to raise awareness about community resources for stress reduction.

Among employers overall, as shown in Table 14, there seemed to be proportionally fewer policy and environment interventions implemented to achieve the goal of stress reduction when compared to healthy eating and physical activity interventions (26% vs 56% and 33% of interventions, respectively). It appears that slightly more policy interventions were planned, but not yet implemented, and it's probable that policy changes related to work stressors and supports may take a longer time to develop and implement. Implementing policy and environment interventions is an important primary prevention strategy for long term management of job stress and chronic health problems associated with job stress such as heart disease, musculoskeletal disorders, and anxiety/depression.

Figure 13. Employee-reported rates of stress affecting health, readiness and opportunities to increase stress management at baseline and 12 months follow up

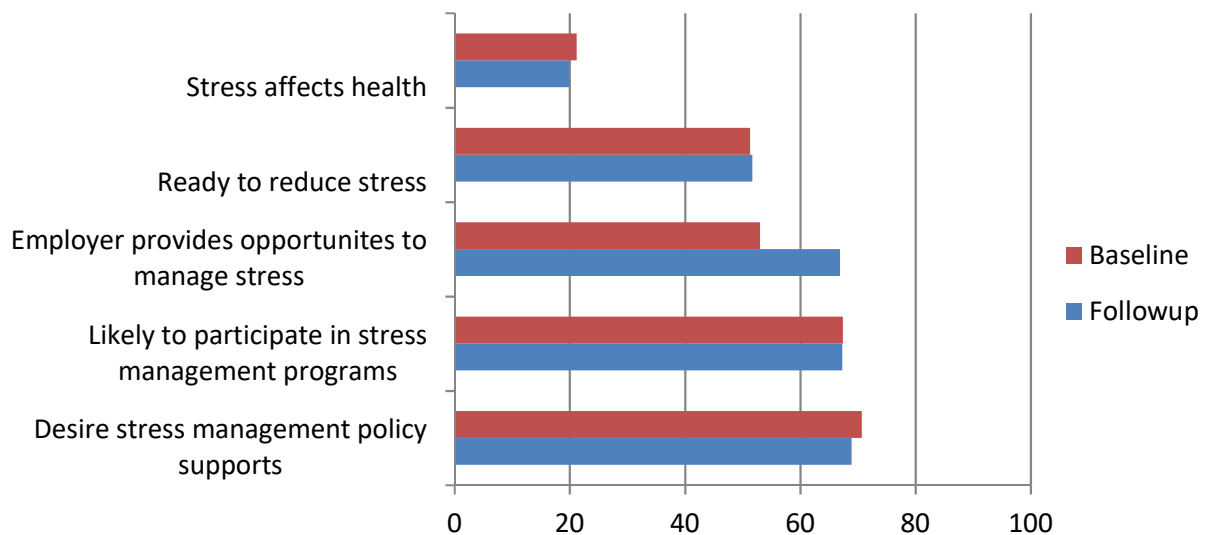


Figure 14. Types of planned and implemented stress management interventions

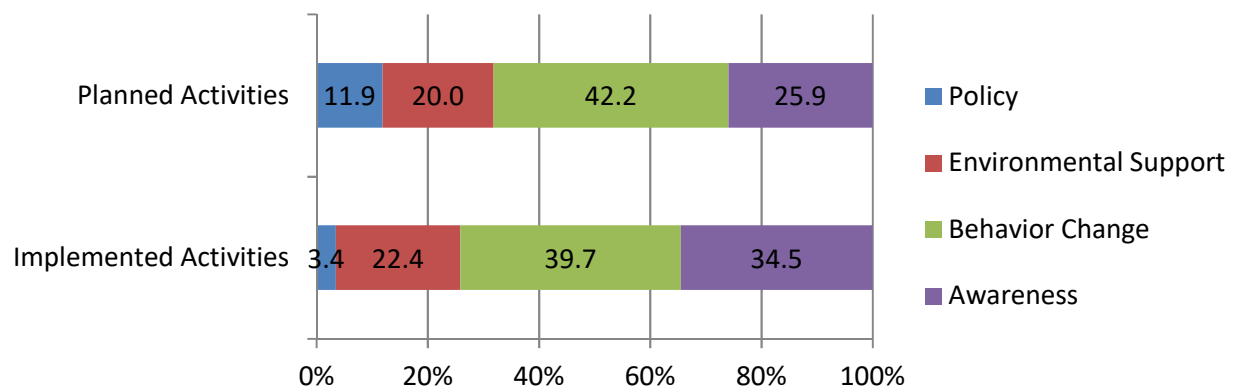


Table 14. Planned* stress management interventions

Intervention Type	Most Common Intervention Activities	Freq.
Onsite group classes and activities for stress reduction	Stress management and coping skills trainings, yoga classes, meditation/mindfulness classes	47
Information sharing to raise awareness	Newsletters, posters	27
On-site access to spaces for stress reduction activities	Designated quiet space, provide adult coloring books	19
Team building and social support	Staff events to promote socializing, peer-to-peer network for support	16
Policy supports	Flexible work location or hours, management training	12
Individual counseling, coaching, etc. (face-to-face, internet etc.)	Access to counseling services, massage services on site	9
Reduce financial barriers	Subsidized massage and mental health resources Activities to remove financial barriers to stress reduction/mental health	5

* Data obtained from 138 employers that submitted Worksite Wellness Action Plans.

Community Partnerships

All WoW employers named community partners that they could engage to provide resources (either in-kind contributions or for purchase by employees) for specific wellness activities for their employees. Table 15 lists the types of partners planned or formed by WoW organizations. Local businesses and gyms (combined) comprised nearly 42% of planned partners; many of the local businesses were small service providers offering wellness-related services such as fitness, yoga, massage, health coaching, etc. Health care related partners were the next most popular type (18%). Specific potential partners named frequently included the YMCA, for recreational facilities, and farms or farmers markets, to promote access to fresh produce. Overall, enrolled organizations were successful at forming partnerships with about 46% of the organizations they proposed in their action plans.

Table 15. Community partnerships formed by organization type

Organization type	Examples	Number Planned (147 orgs)	Number Actual (85 orgs)
Business	Food retailers, yoga studios, Weight Watchers, Nutrition Center, Charles River Canoe and Kayak	196	80
Gym	YMCA, HubWay Bikes	143	66
Health care provider	Berkshire Health Systems, Lowell General Hospital	77	40
Health care insurer	Blue Cross Blue Shield, Harvard Vanguard, Tufts, Massachusetts Interlocal Insurance Agency	70	33
Non-profit	YMCA, HubWay Bikes	59	22
Individuals	Yoga instruction, fitness training, or dietary education.	59	49
Town or government	Town departments, parks, vocational technical schools	58	31
Association/coalition	Coastal Rail Trail Coalition, Southcoast Worksite Health Collaborative	44	21
Farm, farmers market		39	18
College or university	Gordon College, Roxbury Community College, Smith College, UMass	23	7
Other		36	4
Total number of partners		811	374

Several employers initiated unique partnerships with local businesses and retailers to promote health in the workplace. A community health center established a partnership with “Fresh Truck” (a mobile produce stand) to bring fresh produce onsite weekly for employees to shop. This organization is planning to expand service hours to make the produce available to their health center clients as well. Other employers connected employees with existing resources such as websites that locate restaurants with healthy food choices and walking route maps in nearby areas.

Program Implementation: Successes, Challenges, and Quality Improvements

Ninety-six Worksite Champions of the various organizations were surveyed (50), interviewed (35), or both (11) to gather feedback about the WoW program between July 2016 and January 2018, including 24, 29, 15 and 28 participants from Cohort 1, 2, 3 and 4, respectively.

Twenty Wellness Champions from Cohort 1 and 2 organizations were interviewed in February 2018 to gather feedback about their experiences approximately one year after their participation in Working on Wellness ended.

Additionally, HRiA and AW program staff provided feedback in the group interviews on the program implementation at various intervals from November 2015 to December 2017.

Quality of Working on Wellness curriculum:

Organizations were highly satisfied with the quality of the WoW training program (Table 16). Most of the Wellness Champions said they would recommend the program to other employers (88%), and that the tools were useful for creating their organization’s program (92%). Champions mentioned the usefulness of the Needs and Interests survey in providing them with important information about employee interests and health impacts of the program.

Nearly all (91%) of the respondents rated the overall value of the WoW online curriculum as excellent or good. Most (81%) rated the opportunities for peer learning as either excellent or good. Overall, participants preferred the format of group technical assistance calls with a technical advisor over the online discussion portals. The calls were useful and helped keep the Champions on track.

The online learning modules reported the most useful were for assessment of employee needs and interests, planning wellness activities, and implementation. The most highly rated guidance was on assessment of employee needs and interests with 74% of Champions rating the technical assistance calls as useful or very useful and 89% rating the online learning modules as such. The Champions found the guidance on Community Partnerships less useful than the other topics, with only 46% rating the technical assistance calls or online learning modules on this topic as useful or very useful. Additional feedback supported these results. Champions indicated that developing community partnerships was particularly difficult because of issues with capacity, conflicting goals, location and the time it takes to build relationships.

“Community partnerships were particularly difficult for sure. There was such a short timeline. Partnerships take years, not months.” - Wellness Champion

Table 16. Quality of “Working on Wellness” curriculum and technical support, as reported by participating employers

Quality Indicator (percent rated)	“Agree” or “Strongly Agree”
Online curriculum organized and presented clearly	87%
Instructions for accessing assignments and tools were clear	83%
Instructions for completing and submitting assignments were clear	80%
Tools were useful for creating organization's program	92%
WoW program met expectations	90%
“Good” or “Excellent”	
Overall value of WoW online curriculum rated	91%
WoW Expert Series quality (reported by the 80% that attended)	70%
Opportunities for peer learning	81%
Online discussion portal	39%
Percent	
Respondents who used the online discussion forum	62%
Technical assistance calls are very useful	55%

Champions’ appraisal of wellness program support within their organizations:

WoW organizations were required to assign a key upper-level leader or “Sponsor” within their organizations to lead and support the new wellness initiative. The majority of respondents from the different organizations were pleased and satisfied with their Sponsor’s support (and management support generally) of the wellness program (Table 17). Most (87%) Sponsors met regularly with the Champion and/or Wellness Committee to review progress of the wellness initiative and WoW materials. Comments from Champions with supportive management suggest that they had buy-in from the beginning. The Worksite Wellness Action Plan and Worksite Wellness Evaluation Report were cited as useful in this process. All (100%) of the Wellness Sponsors communicate regularly with the organization about health, wellbeing and safety, could be seen practicing healthy behavior and encouraged employees to participate in wellness activities. Many of the Sponsors were in high profile leadership roles that come with great responsibility and competing priorities. Some Champions reported their Sponsors were supportive, but really didn’t have the time to devote to supporting the wellness program in concrete practical ways. One year post-WoW Champions indicated this was still the case.

“The whole experience has helped get more top management support. It is helping them look at the workplace culture and make changes were necessary. Overall, it has helped changed the mindset of the organization. The employees have always had access to the gym and facilities, but this program has helped put more of a focus on wellness. It has helped to gain awareness on the importance of wellness internally within the workplace, instead of just externally.” - Wellness Champion

Table 17. Program support and engagement in 96 WoW Cohort 1-4 organizations

Wellness Program Sponsor Support	% rated “Agree” and “Strongly Agree”
Sponsor communicated regularly with organization about health, safety, and wellbeing	87%
Sponsor participated in wellness activities	85%
Sponsor generally could be seen practicing or modeling positive health behaviors	100%
Sponsor encouraged employee participation in wellness activities	94%
Sponsor met with the Champion and/or wellness committee to review progress of the wellness initiative	87%

Employee involvement:

Most Wellness Champions across the four cohorts reported high engagement levels among the employees and attributed the successes of the program to high employee involvement (Table 18). Some Champions stated that they observed an increase in employee involvement and excitement about the wellness program while other organizations found it very challenging and difficult to get employees to participate and become engaged with the wellness program.

“Many employees have participated in the many different programs we have offered and now they want more and more. I know we will sustain the program for years to come. A healthy staff is a happy and productive staff!” – Wellness Champion

Table 18. Employee wellness involvement in 96 WoW Cohorts 1 – 4 organizations

Employee Involvement	% of champions reporting
Employees are participating in wellness policies and programs	95%
Wellness committee members are actively engaged in leading the wellness program	92%
Some non-wellness committee members are taking action to initiate wellness policies and programs in the workplace	72%

Organizations had many of the same challenges one year post-WoW as they did during the initial year of the program. Employee participation was a challenge for many. Champions reported high engagement levels among the employees although some felt they had good participation only by a core group of employees. Different schedules, job demands, work locations, and interests made it difficult to offer activities that motivated and were available to

everyone. Some critical staff found it difficult to step away from their roles to participate in wellness activities.

One year post-WoW, the vast majority of Wellness Committees exist in their original capacity, though turnover has resulted in some original members leaving the organization while other new employees have filled their roles on the committee. The Wellness Committee continues to help guide the program, in varying degrees.

Other notable successes:

In one organization, the program has helped get more top management support. It is helping them look at the workplace culture and make changes where necessary. The Champion added that overall, participation in WoW has helped to change the mindset of the organization. The employees have always had access to the gym and facilities, but this program has helped put more of a focus on wellness. It has helped to grow awareness on the importance of wellness within the workplace.

Another Champion said they have scheduled time to participate in their company's wellness initiatives and took an oath to be more active throughout week. Employee got fitness trackers and shared their number of steps with each other. They encouraged people to walk to sites during work rather than drive.

One Champion is developing relationships with facilities like gyms and with vendors who specialize in working with people who haven't worked out before. This individual is working to increase awareness of the healthy lifestyle options available and increasing opportunities that speak to "making the healthy choice the easy choice." Another part of the plan is to bring a refrigerated vending machine that stocks healthy food items like yogurt, hummus and vegetables.

Examples of other specific initiatives:

- "Sit for 60 and move for 3" with a written policy around it
- A Fresh Truck that comes to their location
- Walking challenges
- Using fitness trackers and sharing numbers of steps and encouraging people to walk, rather than drive, to sites during work
- Offering fruits and vegetables rather than cookies or chocolate bars

Program staff also identified areas they thought were particularly successful or useful:

Technical Assistance: The addition of a guiding document assisted Wellness Champions in going through the various steps. Assisting organizations in identifying specific goals and objectives helped them implement stronger programs. The Program Staff redesigned the curriculum modules and technical assistance to be more helpful to organizations while also reducing the time commitment. The team also made the modules and technical assistance more complementary, reducing repetition.

Deliverables: The Working on Wellness Action Plan was a unique and powerful tool. Conference presentations and manuscripts will leave behind a body of knowledge that will live on and be a tremendous asset for the MA Department of Public Health. The tools developed added to the success of the program.

Organizational Support: Senior management support in terms of embracing and funding the project was important, as well as having a strong Wellness Committee working with the Wellness Champion and an organizational culture that values and accommodates different ideas and opinions. Infrastructure was important for success in terms of how engaged the Champions were, as well as having a strong communication and marketing plan.

Improvements Made by Program Staff:

The Program Staff indicated several adaptations were made to the program implementation to improve efficiencies and effectiveness. Based on responses to multiple evaluations of program processes, HRiA and Advancing Wellness modified the program format between Cohorts 2 and 3. For example, the curriculum was streamlined, the required technical assistance calls were reduced from 19 to 8, and the estimated time commitment for Champions and Wellness Committees was reduced by half. We examined whether there were statistically significant changes in program satisfaction between Cohorts 1 and 2 and Cohorts 3 and 4 related to differences in program format. Changes in satisfaction between cohorts were minimal. Cohorts 3 and 4 rated the instructions as clearer than did Cohorts 1 and 2. Technical assistance calls related to Implementation were rated more favorably by Cohorts 1 and 2. Cohorts 1 and 2 were more likely to report that their wellness initiative would continue once WoW ended.

Selected examples of programmatic changes:

Goal-setting: Program staff simplified and streamlined the organizations' goal-setting process. More resources and provided examples were provided. Only one goal statement (instead of three) was requested of organizations after Cohort 2 to focus program efforts/impact.

Time commitment: Program staff more clearly communicated the level of time commitment necessary and reduced the time commitment. For Cohorts 3 and 4, the expected time commitment for Champions was reduced from 4-6 hours to 2-4 hours per week, while the time commitment for committee members reduced from 8 hours to 4 hours per month. The program duration, number of curriculum modules, and amount of information delivered in the curriculum were also reduced. It should be noted that concerns about the time commitment were less prevalent in Cohorts 3 and 4 than they were in Cohorts 1 and 2.

Communication: Program staff explained further what goals and objectives entailed to organizations. Often times, organizations did not understand that goal-setting and planning would be difficult and time-consuming initially but would become easier to manage once the program was implemented.

Technical assistance: While interacting with the on-line system, various organizations experienced technical issues and other challenges with the technical assistance calls. Program

staff needed to find a balance between providing technical assistance and providing solutions to the issues that arose. While reducing time on technical assistance calls was beneficial in some ways, it also resulted in reducing the engagement and interaction for some of the organizations.

Champions and Program Staff recommendations to further improve the Wellness program:

Wellness Champions and Program Staff offered recommendations on how the WoW program could be improved.

Curriculum and assignments: Champions suggested to provide more instruction up front (particularly on the on-line system), condense some of the material to reduce redundancy, have fewer assignments and provide other support for completing assignments (e.g. provide more examples or have technical assistance calls after they went through the learning modules).

Program delivery: Program Staff suggested looking for ways to redesign to increase efficiencies even more. Increasing education of organizations regarding how to implement a policy may be helpful. In addition, increasing education regarding root cause analyses may have positive implications.

Time and timeframe: Program Staff recommended increasing time between program initiation, recruitment, and administration of the Needs and Interests Survey. Additional follow-up with organizations is necessary for gathering additional vital information. It is helpful to build in extra time to explain to organizations what is entailed in developing goals and objectives. It is necessary to make sure that organizations understand that while goal-setting and planning may be difficult and time-consuming, it will become easier to manage once the program is implemented. Champions agreed about the short timeframe while they also thought the program was time consuming, thus it is important to streamline the program and processes and find committed people and more resources to help.

Tailored programming: Several Champions and Program Staff expressed that WoW could have been improved if there was one-on-one support to tailor programming to the size, culture and needs of the organization. Individual planning, tailoring evaluation tools such as the Needs and Interests Survey to their unique populations, and designing the program together were some examples.

Face-to-face collaborations: Several Champions and the Program Staff thought increasing opportunities for in-person meetings would facilitate collaborations, improve the training and help to motivate and engage participants. Some suggested in-person meetings, like the "sharing event" (a one-day peer learning opportunity attended by WoW participants), would be more effective when organizations are just getting started. Some suggested having onsite meetings with technical advisors while others said having a quarterly meeting to share ideas with other organization about the program.

Appropriate organizational support: Champions suggested that participating organizations need to make sure they have strong management support and engaged key employees to support the initiative. It is also important to recognize differences among different environments within an organization.

Needs and Interests Survey: Program Staff stated that the Needs and Interests Survey was very comprehensive but quite long with a great deal of information. Follow-up administration of the survey felt like it happened too soon, and there was not enough time between baseline and follow-up. Thus, it is necessary to simplify the Needs and Interests Survey, reduce number of questions and make the survey more concise and to the point. It is important to administer the follow-up survey one year after the baseline.

Financial Incentives and Partnership: Program Staff thought more funds allocated for programs would be helpful. In addition, working with existing community partners who are excited and invested is helpful.

Organization Supports: Champions suggested getting committee members and other managers on board much closer to the start of the program, creating a communication plan with the wellness team, and organizing, dispersing tasks to reach deadlines and saving more time for a more successful program, and recruiting committee members that are dedicated in the planning process. Also, it is important to involve departments that will play a critical role in setting up programs. For example, making sure a Facilities Department is on-board to install new healthy vending machines and water systems in the building to reduce the use of plastic water bottles.

“Having a face-to-face meeting prior to starting the program, like a kick-off meeting, could improve the training by getting the teams excited and engaged from the beginning. Inviting all cohorts, or just the Champion and sponsor, or wellness committee members to participate in this event would make everyone feel more comfortable and could lead to stronger collaborations.” – Wellness Champion

Program sustainability:

The majority of Wellness Champions (71%) across all four cohorts reported that it was very likely that their wellness initiative would continue once the WoW program ended. Half (50%) reported that it was very likely that their organization would allocate resources to support their wellness initiative after the end of WoW seed funding.

If WoW resources continued to be available in the future, Champions indicated these resources would be the most useful:

- Extension of seed funding (n=34),
- Continued electronic resource sharing (e.g., Newsletters, listserv) (n=28),
- Annual in-person network meeting with peers (n=27), and
- Continued access to Technical Advisors as needed by phone (n=21).

Nearly all (95%) organizations interviewed still had a wellness program intact one year post-WoW, and more than half (55%) reported having a somewhat comprehensive program, characterized as having more than just a few wellness activities. All but two of the Champions interviewed have been managing their wellness programs since their participation in WoW, though only one-third reported it was a formal part of their job description. The one organization who reported they no longer have a wellness program in place said their Sponsor left, and the organization wasn't able to find anyone else to champion the program at that

level. As a result of losing that management support, the wellness activities ended. However, the Champion is hopeful their organization will revive their wellness program with renewed leadership support and funding once their company's strategic planning process is completed. One-year post-WoW, Champions still found it a challenge to devote sufficient time to managing the wellness program and that the priorities of their day-to-day job responsibilities competed with the priority of the program.

One year post-WoW, 15 out of the 20 organizations interviewed still have a senior manager in the Wellness Sponsor role, and Champions from two organizations indicated that they have support from another senior manager. Eleven of the 15 Sponsors have continued their role one year post-WoW.

Wellness Champions report that there is some level of funding for 16 of the 19 programs, one year after their WoW program participation ended. Many Champions have been resourceful. They have saved some of the seed funding from WoW and utilize the resources they have within their organizations to reduce costs, which includes staff members leading classes in-kind, community partners who provide activities at a reduced or no cost and leveraging free resources available through their health care providers. Three-quarters (75%) leverage resources from other organizations. Some have also applied for and received grant funding to pay for wellness activities.

One year after WoW ended, 18 of the Cohort 1 and 2 organizations interviewed are still connected to at least some of their community partners, and two-thirds of those organizations saw their community partners as adding at least some value to the success of their program.

Three-quarters (74%) of the Wellness Champions reported they periodically still utilize their Worksite Wellness Action Plans and about two-thirds refer back to their Needs and Interests Survey results to assess activities offered and make changes. Slightly more than half (53%) said they utilized the WoW online resources, such as the webinars, for training and researching new offerings. Several Champions (37%) reported they have created their own evaluation tools to measure employee satisfaction with activities or to re-assess employees' needs and interests. Many Champions indicated they would like to be able to connect with similar organizations for support and ideas.

Projected Benefits of WoW Program Activities

We searched the literature for published scientific studies that documented the effects of similar programs on health behaviors, health status, and/or costs related to health conditions (see Appendix 4). We used data from these studies to project likely health and financial benefits of the WoW program, given the prevalence of unhealthy behaviors in the workforce (Table 9) and the numbers of employers planning related activities or policies (Tables 11, 12, 13 and 14). For this report, the published program benefits have all been expressed as percentages of baseline values from the employee population. The results have been tabulated separately for the four major intervention targets, i.e., healthier diets, physical exercise, weight management, and stress reduction.

The benefits shown in these published studies range from as high as 20% or more of

baseline value in individual items, down to as low as zero (i.e., no change), depending on the study and the outcome. This range of effects may be due to differences in the specific intervention activities, workforce demographics and baseline health status, length of follow-up, and other factors. There is ample evidence here that an improvement of 10%, 20%, or even higher is plausible from a well-conducted intervention. The expected success rate in risk mitigation is shown for each measure over a range (above 0% improvement) that is consistent with the evidence summarized above, to allow transparency in the estimations.

Most of the outcomes reported in these studies are expressed in terms of average units for the entire population, which does not translate directly into change in the number of people with (or without) a specific risk factor. However, it can reasonably be assumed that in a population with an average reduction in BMI over the follow-up period, some individuals moved from “obese” to “overweight” or from “overweight” to normal weight. For purposes of calculating expected health benefits, we assumed that a 5% change in a measured outcome was roughly equivalent to 5% of the population changing risk category. Nevertheless, the improvement of BMI could also have subsequent/secondary benefits on employee’s health, e.g., preventing complications from diabetes or high cholesterol. The combination of exercise, healthy diet, and stress reduction could also have positive interactions among them and lead to greater benefits beyond each individual activity alone. The calculation that is presented in this report only includes the direct cost saving on medical care from each individual target area without considering potential secondary benefits and possible synergistic effects of multiple concurrent intervention approaches.

As shown in Appendix 4, the Action Plan activities can be predicted to lead to improvements in daily consumption of fresh fruits and vegetables, regular exercise, weight loss, and reductions in stress that interferes with health. Based on prevalence estimates at baseline, among the 70,555 employees in the participating organizations, 60,677 (86%), 42,333 (60%), 43,744 (62%) and 14,817 (21%) at risk workers could potentially benefit from physical activity, healthy eating, weight maintenance and stress management interventions, respectively.

Since these outcomes represent items in the summary risk factor score, we could, if desired, estimate their impact on that total score. Thus, a 10% improvement in one of the 9 items could be assumed to represent an average improvement of about 1% in the total score, and a 20% improvement in one item would shift the entire score by about 2%. As noted above, the summary score used here is similar to other sets of scored health risk indicators that have been associated with increased morbidity, absenteeism, presenteeism, and health care expenditures (Burton et al. 2006; Eddington 2001; Henke et al. 2011; White et al. 2015; Caretto et al. 2016).

Such shifts in risk categories have also been associated with monetary savings to the employer; for example, DiBonaventura et al. (2015) estimated that a normal-weight employee cost an employer about \$600 less per year in indirect costs (e.g., presenteeism), compared to an overweight employee. Caretto et al. (2016) found that increased exercise was associated with reduced medical and prescription expenditures, particularly medical expenditures for endocrine diseases and prescription expenditures for gastrointestinal drugs. An evaluation of a

worksite health promotion program in a large company by Henke et al. (2011) showed an average annual per employee savings for \$565. The authors concluded that the return on investment is at the range of \$1.88 to \$3.92 for every dollar spent on the program.

Of particular interest is a recent study of a relatively small organization (172 employees), evaluating an educational program in combination with a health risk screening (Allen 2012). The authors documented a reduction of about 13% in low-density lipoprotein cholesterol in the entire population after 12 months, and an average reduction of 0.3 points in their disease risk score (6 items) relative to the intervention group. The program represented a financial investment of \$454.23 per one-point reduction in the composite score, which is similar to investment amounts reported by much larger companies.

Financial savings to an employer who implements a workplace health promotion program are achievable in two ways. One is “cost reduction,” which is achieved by improving health for individuals who are unhealthy. The other is “cost avoidance,” which is realized by deterring healthy employees from engaging in new unhealthy behaviors which, in turn, would lead to new medical care expenses. Most published intervention trials have not explicitly attempted to quantify these two phenomena separately. The published data generally represent cost reduction, although they may include cost avoidance as well without explicit acknowledgement. Thus, the savings estimated for this report represent the combination of both program effects but may be under-estimated.

We estimated the potential saving in medical expenditures due to the WoW program by considering the total number of employees in participating organizations, the number of employers targeting the specific risk factor, and the proportion of employees with the specific risk factors, the expected success rate in risk mitigation, and the average annual decrease in medical expenditure. We set the annual average cost reduction per unit decrease in risk score at \$150 based on findings from Edington (2001) (Note that this is an underestimate, as the dollar value has not been inflation-adjusted to 2015 dollars). We assumed the effects on specific risk factors are independent from each other. For the employees who do not eat sufficient fruits and vegetables at the start of the program, the predicted annual reduction in medical expenditures ranges from \$282,149 for a 5% success rate in healthy eating (i.e., a 5% improvement in the rate of healthy eating) to \$1,775,556 for a 30% success rate (Table 19). Based on the same expected success rates (5% and 30%), we can anticipate a cost reduction in the range of \$295,273 to \$1,771,636 for employees not getting sufficient physical exercise, and \$28,892 to \$173,354 for employees whose stress interferes with their health.

In sum, given the actual prevalence of risk factors reported in this population and the plausible range of success rates for the activities carried out by these employers, the estimated savings for medical care expenditures alone range from \$0.68 million (assuming 5% success rate for each of the target areas) to \$4.17 million (assuming 30% success rate for each of the target areas) for the top three Action Plan targets together (diet and nutrition, leisure-time exercise, and stress reduction). For the \$3.4 million that the PWTF invested in the WoW program as of December 2017 (excluding evaluation cost), it potentially yielded \$0.20 to \$1.22 in annual medical care cost reduction from these three target areas in one-year program period for every

\$1 that PWTF invested. However, the magnitude of cost saving was likely underestimated because we have not included potential cost avoidance of deterring healthy people from engaging in new unhealthy behaviors, probable prevention of disease complications as subsequent/secondary benefits from each target area, potential synergistic benefits among multiple target areas, and possible gains from increased productivity or reduced absenteeism. Furthermore, the cost saving is expected to be even greater for future expansion of the WoW program. With the previous PWTF investments, the intervention methods and instruments, and infrastructure for program delivery, data collection and processing have been well developed, tested and refined; intervention and evaluation staff are trained and adapted to the settings. These efforts have paved a solid foundation for the continued operation of the WoW program with greater cost-effectiveness in the future. Nevertheless, the current cost saving estimate is solely from the PWTF's perspective. Future analysis should also include the cost to employers as data become available.

Table 19. Expected health benefits, among employees at risk, from WoW program

Baseline prevalence of risk behavior (%)	Cost reduction		
	Expected success rate (%)	Expected number of employees to benefit *	Expected annual savings **
1. Healthy Eating	5%	1,881	\$282,149
86% employees not eating sufficient fruits/vegetables	10%	3,762	\$564,299
62% employers including this target in their Action Plans	20%	7,524	\$1,128,598
	30%	11,837	\$1,775,556
2. Exercise	5%	1968	\$295,273
60% employees not getting sufficient exercise	10%	3937	\$590,545
93% employers including this target in their Action Plans	20%	7874	\$1,181,091
	30%	11811	\$1,771,636
3. Weight management	5%	503	\$75,459
62% employees overweight or obese	10%	1,006	\$150,917
23% employers including this target in their Action Plans	20%	2,012	\$301,834
	30%	3,018	\$452,751
4. Stress	5%	193	\$28,892
21% employees with stress interfering with health	10%	385	\$57,785
26% employers including this target in their Action Plans	20%	770	\$115,569
	30%	1156	\$173,354

* Based on estimated total number of employees in participating organizations of 7,555.

** Calculated based on projected savings of \$150 per unit reduction in risk score.

DISCUSSION AND CONCLUSIONS

After a thorough analysis of data on the program implementation and responses from both employer and employee participants, the evaluation team found evidence that support the program achieved broad reach at both employer and employee levels, wide acceptance, successful delivery of technical assistance to participating organizations, successful initiation of activities, compliance with program requirements, positive employer- and employee-level outcomes in a number of target areas, and great potential for sustainment. Although the long-term effectiveness of the interventions is yet to be evaluated using follow-up surveys and analysis of APCD data, substantial health benefits and health care cost savings are predicted into the future, according to a preliminary cost-saving analysis. This conclusion is supported by the findings on the improvements in multiple targeted behavioral mediators, such as healthy eating and active living.

This evaluation also found numerous challenges at both employer organization and employee levels, which are the areas for further improvement. Further below we discuss these issues and make recommendations for future continuation and/or replication.

Expansion of Workplace Wellness Program and Its Impact on Employee Health

To date, the Working on Wellness program has enabled 169 Massachusetts employer organizations to plan and implement comprehensive worksite wellness programs, representing over 70,500 employees. Among them, 52% were small organizations with 200 or fewer employees, i.e., the intended target population. Prior to the WoW program, these employers had low or no activities related to promoting employee health, with the exception of legally-mandated occupational safety and health activities.

Nearly 100% of participating employers that completed the WoW program have established their own wellness program with a staffing structure and budget, assessed employee needs and interests, and developed action plans targeting key preventive lifestyle factors (i.e., healthy eating, physical activity, stress management, weight control) that are important to delay or avoid chronic diseases.

Program Impact on the Prevalence of Preventable Health Conditions

The published literature shows that multiple health risk factors, e.g., poor diet, lack of exercise, and stress, can be mitigated by a healthier lifestyle that is associated with lower prevalence of preventable health conditions, e.g., diabetes, high cholesterol, and high blood pressure. Through the WoW program, employers have increased the offering of wellness programs with policy and environmental supports. Employees in participating organizations expressed great interest in obtaining such services and supports. Substantial numbers and proportions of them have made or were ready to make positive changes in their health behaviors.

The activities planned by participating employers were aimed to improve daily consumption of fresh fruits and vegetables, regular exercise, healthy weight, and stress reduction. The proposed activities are evidence-based and are supported by existing literature.

Prevalence rates of poor health behaviors or conditions were high in the workforce, suggesting the good fit and broad impact of the program as well as planned activities.

As intended, organizational policies and environmental supports have been established or substantially improved for these targeted areas of intervention. As a result, proportions of employees reporting employer provisions of opportunities for healthy eating, physical activity weight management and stress reduction increased substantially.

Although the longer term effectiveness of the interventions is yet to be evaluated using future long term follow up data, the one-year follow up evaluation data showed promising trends towards beneficial effects in multiple behavioral and health indicators measured in the Needs and Interests Follow-up Survey, including weight management, healthy eating, physical exercise and stress management. Due to the short period of follow up, we did not observe any reduction in chronic conditions including diabetes, hypertension, high cholesterol and depression. As the programs continue, however, we anticipate greater decreases in the average number of risk factors and the proportion of employees having 5 or more risk factors. It is also reasonable to anticipate measurable decreases in the prevalence of chronic conditions such as obesity, uncontrolled high blood pressure and diabetes. To have a clearer and more complete picture, longer term follow-up surveys are necessary.

Program Impact on Health Care Costs or the Growth in Health Care Cost Trends

Cost reductions are achievable by improving health for individuals at the high-risk level and cost avoidance can be realized by maintaining health for those at the low risk level. Most of the literature addressing cost savings has not differentiated these two components, but it appears that most of the quantified savings represents cost reduction. The high proportion of people with certain risk factors, e.g., 86% with low vegetable and fruit consumption according to our baseline surveys, indicates a substantial opportunity for savings by reducing these risks. The amount of total savings from cost reduction varies among the risk factors, because of their prevalence rates as well as the differing expected success rates of risk mitigation or health maintenance activities. Assuming as low as a 5% success rate and as high as a 30% rate for each target area, the estimated reduction in medical care expenditures ranges from \$0.28 to \$1.78 million for health eating, \$0.30 to \$1.77 million for exercise, \$0.08 to \$0.45 million for weight management, and \$0.03 to \$0.17 million for improved stress management. The potential cost savings were heavily influenced by proportions of employers planning activities targeting the specific behaviors or conditions.

Assuming success rates of 5%, 10%, 20% and 30% for the four target intervention areas, the WoW program could potentially yield \$0.20, \$0.40, \$0.80 to \$1.22, respectively, in medical care cost reduction from these four target areas for every \$1 that PWTF invested on the WoW program (\$3.4 million as of December 2017, including seed funding payments of \$1.3 million, excluding evaluation cost). This likely underestimates the cost saving due to the lack of consideration of potential savings gained from cost avoidance by deterring healthy people from engaging in new unhealthy behaviors, prevention of disease complications from subsequent/secondary benefits in each target area, synergistic benefits from interactions

among multiple target areas, and possible gains from increased productivity or reduced absenteeism. If the cost of program/infrastructure development is excluded (approximately \$438,616), the return on investment ratio will be higher, that is, \$0.23, \$0.46, \$0.92 to \$1.40 assuming success rates of 5%, 10%, 20% and 30% for the four target intervention areas, respectively. If the WoW program is expanded, the cost saving ratio is expected to be greater and the cost-effectiveness of the program substantially better, since a solid foundation for program delivery and data processing has been established. We will update the cost analysis when data on program cost and benefits to employers become available. In addition, subsequent analysis of All Payer Claims Data may shed insights on realized cost savings that are potentially associated with the program.

Lessons Learned

Through this evaluation, we learned important lessons in several areas that are important to the continuation and future expansion of the WoW program, including program reach, delivery, community partnership and evaluation methods.

- Program delivery

Technical assistance, with respect to interventions as well as data collection for evaluation, was well received by the participating organizations. The infrastructure developed in the WoW programs functioned well and facilitated the successful conduct of the program, which should be maintained for future use. Strategies and approaches have also been developed to sustain ongoing wellness policy/program training to Massachusetts employers for participating organizations. Additional data-gathering to select the critical core elements of the WoW program is needed for effective policy/program implementation by employers, and support the proper tailoring of the program interventions.

The WoW training curriculum was strengthened with information about primary prevention of workplace determinants of chronic disease and injuries - such as job stressors and ergonomics. Availability of safe, stable, quality, well-compensated work is fundamentally health promoting, which was not the focus of this program, but could be considered by the WoW program in the future. Addressing these topics in the WoW training would be a step toward aligning with Centers for Disease Control and Prevention (CDC) and National Institute for Occupational Safety and Health (NIOSH) concepts of Total Worker Health® programs (<https://www.cdc.gov/niosh/twh/default.html>) - programs that integrate health promotion with occupational health and safety.

- Program outreach

The program has successfully reached a larger number of employer organizations. However, the participating employer organizations were largely from government agencies and non-profit organizations. Future program design should consider specific features of for-profit companies and industries which were underrepresented in the WoW program. These industries might have a large proportion of low-wage employees, contract workers, or off-site staff. New strategies and approaches are needed to enroll organizations in these underrepresented sectors. The effort will help expand the reach and realize greater potential of the WoW

programs.

WoW employer workforce demographics show that organizations that enrolled trended toward pay scales that were above the low-wage level. This may be because employer motivation to focus on employee health and well-being is contingent on a stable workforce for whom the employer is paying health care premiums. Employers are not likely to be motivated to invest in long-term benefits for low-wage workers, who often have higher turnover rates. On the population level, this points to the need for new strategies for reaching workers on the lower end of the wage scale. The WoW program or the MA Department of Public Health could explore community-based models to reach low-wage workers, or another outreach strategy tied to individual health insurance plans.

Employee counts are unlikely to include contract workers. There is an increasing general trend toward outsourcing support services to temporary agency contracts – a growing source of employment for low-wage workers in several industries, e.g., cleaning, food service, laundry. These contract works are less likely to be invited to or eligible for wellness activities at their assigned worksites. Specific attention to recruiting their parent companies, i.e., temporary staffing agencies, and linking these contract workers with their assigned worksites is necessary to provide services to these workers. There is also an increasing trend that more employees work from home or off site. Dissemination of information and the wellness activity design could consider these new trends, either contract worker or people working from home, to improve outreach and engagement through easy-access tools.

- Community partnership

New strategies and approaches can be further developed to effectively reach underserved workers (e.g., people employed by smaller employers, temporary agencies, industries employing high numbers of low-wage workers, as well as those who work offsite or at home). Integration of the WoW worksite, community/neighborhood-based interventions, and health care settings should be explored in possible future waves of PWTF interventions, to maximize the impact of PWTF programs by covering all steps of work-life cycle.

Strategies and approaches should also be developed to ensure that the effects of work site interventions could be sustained beyond the working environment. Knowledge of and skills for healthy living and safe working learned from the programs can be translated into daily healthy living for the employees and their families, such that WoW programs are a critical component of the culture of health in communities at large.

- Program Evaluation

Continued evaluation and monitoring of the employer participants is needed to assess the longer term health and business impacts of the program. The true effects will not be known without longer term follow-up. The short-term evaluation period available limited the potential to show evidence of reductions in the prevalence of chronic diseases.

A time frame of 3-10 years is more realistic for evaluating a primary prevention program. The reason is that there is a latency period for observable changes in health behaviors

and health outcomes. People take time to adopt new behaviors and to sustain them. Disease risk factors such as smoking, high blood pressure, overweight can act on physiology over time before markers or symptoms of disease can be discovered clinically. Short term (1-2 years) pre-post measurement of health outcomes may be long enough to detect changes in behavior for a portion of the population. However, longer term monitoring would be needed to capture changes in clinical indicators and diagnosed conditions over time.

The potential saving of medical care costs as a result of the WoW program should be further explored. Results should inform health insurance plans. Supported by evidence, effective maintenance of a healthy workforce should be rewarded with lower health insurance premiums.

In addition to the value of reducing medical care costs, maintaining a healthy workforce, and improved productivity, the societal value of the WoW could be further explored, such as its impact on neighborhood/community health promotion, activities and culture of health, and extended benefits to participating employees' families and communities.

Strengths and Limitations - Program Design and Delivery

The WoW program delivery team has designed a thoughtful, evidence-based program and has conducted it in a rigorous manner to provide strong support of employer efforts to enhance the wellbeing of their workers. The program delivery team has also been closely engaged in the design of the evaluation instruments and in collection of employer, employee, and intervention data supporting this evaluation. The ongoing evaluation efforts provided timely and evaluable data to support intervention efforts. The MA Department of Public Health, as the sponsor of the project, has collaborated closely with the program delivery and evaluation teams, providing valuable guidance and administrative support. Due to this strong, interactive, government-community-academic partnership, the program has efficiently and effectively delivered high-quality interventions to participating employer organizations.

The program delivery team provided extensive technical assistance to participating employers; rather than a "one size fits all" program, employers were educated to use information about their own workforces to provide an appropriate set of activities.

Although employers were educated to consider both the physical as well as social and organizational environments, they did not succeed in developing primary prevention activities for all program goals. In particular, psychosocial stress was addressed mostly through enhancing individual coping skills rather than through re-design strategies addressing root causes, such as hiring more staff, involving workers in job scheduling, providing better quality supervision, or improving job safety in order to reduce worker fear of injury. In general, primary prevention of stress requires an organization to consider structural changes that create a more health-promoting workplace. However, this is not usually achievable in the short-term, so continued support of these employers is necessary to move toward such system changes.

While it was not explicitly a requirement of the program, it would have been desirable to engage more employers with a larger proportion of low-wage workers. Their under-representation is not viewed as a failure in recruitment, but rather inherent in the question of

which workers employers choose to invest in for the long-term. Lower-wage and -status workers tend to be viewed as more replaceable by their employers and, in turn, they often have higher turnover rates. This economic reality is not something that WoW or the Department of Public Health would be able to influence through a workplace wellness program.

Furthermore, the program reach was somewhat limited to health, social services and government related employer organizations, and the program delivery team was very successfully in engaging organizations in these sectors. Contract workers were unlikely considered by these programs. Use of contract workers is an increasing trend, especially with regard to certain types of jobs such as housekeeping, maintenance, and food service workers, and it is particularly widespread in some sectors, such as hospitality (NPR 2018). Specific attention to recruiting temporary staffing agencies might be necessary to cover these workers. New strategies are needed to broaden the reach, however. As organizational characteristics, culture and resources differ, the engagement and recruitment strategies may need to be tailored to the specific needs of the industry sectors and individual organizations.

Strengths and Limitations - Evaluation Methodology

The evaluation team developed a series of instruments and interviews to collect comprehensive quantitative and qualitative information to assist organizations in developing their worksite wellness programs. Based on these needs assessment tools, participating organizations have received actionable information regarding areas of the wellness-related needs and interests of their employees to guide organizations' planning for wellness policies and activities.

The information collected was also used for program evaluation. The evaluation used mixed methods - a combination of quantitative and qualitative approaches. In addition to providing summary statistics of collected information, the study design and analytical framework included plans for a longitudinal analysis to monitor the program implementation and investigate the effectiveness of WoW. The approach can be easily adopted for future cohorts of participating organizations and adapted for multiple waves of follow-up data collection and analysis.

This evaluation was conducted at both the employer (organization) and employee levels, which allowed us to compare organizational implementation strategies and successes in relation to the behavioral and health changes among their employees. This is a notable strength, as it has the potential to link employee-level changes to organizational interventions that are actually implemented as well as strength of the interventions.

Several issues warrant attention in interpreting the findings presented here. First, organizations have participated in WoW voluntarily without random assignments. Thus, self-selection bias is possible, or of limited generalizability to non-participating organizations. In addition, a notable proportion of organizations withdrew from the program before it ended at 12 months. The evaluation data is thus subject to potential follow-up bias.

In addition, because of confidentiality issues, we were not able to identify individual employee participants, and thus, employee-level longitudinal analysis is not an option. The

employee level data were thus analyzed as repeated cross-sectional data. Of note, the average turnover rate was estimated by these employers at about 40%. This level of turnover may not be unusual, but it has the potential to impact employer interest in investing in employee health promotion measures, because the characteristics of the employee population may have changed substantially, limiting the interpretability of the evaluation data. The data collection relied on employee self-report which may be subject to social desirability bias.

The existing literature used to estimate future program benefits includes many different outcomes assessed in intervention studies with the same targets as the WoW program, making it challenging to summarize this literature for our purposes. A related consideration is that in tabulating the expected benefits from wellness activities documented in those studies, it is necessary to assume that each activity had an independent effect from any others carried out by the same employer. However, the WoW participating employers have committed to implementing activities on multiple levels. The literature demonstrates that multi-component programs are more effective, which was the rationale for this program decision. At the same time, the evidence of stronger benefits cannot easily be transferred to the specific combinations of activities carried out at WoW employers, as we cannot partition estimated effectiveness among the separate components in published studies. Thus, rather than trying to select exact numbers from individual studies to represent expected benefits, we bracketed the plausible range of benefits (see Table 18). This assumption (intentionally) errs on the side of being conservative, as it is not possible to incorporate the potentially interactive effect of multiple, simultaneous activities. Beyond the benefit that each individual activity alone can bring to employees, a combination of these wellness activities can also enhance their respective benefit and reflect on the overall health.

As noted above (see Results), the estimate financial savings resulting from the WoW program was also likely underestimated for two additional reasons. One is simply that the dollar value of cost reduction has not been inflation-adjusted from 2001 (Edington, 2001) to 2015 dollars. The other is that, ideally, we would have been able to predict expected savings from both “cost reduction” and “cost avoidance.” However, most published intervention trials have not explicitly attempted to quantify these two phenomena separately. The available data generally represent cost reduction, although it is possible that they include cost avoidance as well without explicit acknowledgement. A few studies have specifically described potential savings from cost avoidance, but these generally are based on pre- and post-comparisons within the intervention group alone (Burton, 2014; Edington, 2001; Musich, 2014). It is known that some individuals transition from lower to higher risk levels over time, e.g., by gaining weight as they age. However, without an adequate comparison group, we cannot ascertain the true level of the cost avoidance (if any) resulting from the effectiveness of a wellness program to reduce this probability. If the WoW program continues, efforts should be made to further investigate the potential savings from cost avoidance. This analysis would provide a more complete picture of total cost savings and return on investment of the program.

Recommendations for Program Sustainment and Continued Financial Support

Supported by the prospective evaluation data objectively collected by this independent evaluation team, the Working on Wellness program has successfully recruited a large number of employer organizations (n=204) into the program, delivered planned technical assistance to them, and helped them initiate health promotion activities to improve workplace wellness. The WoW program has affected a workforce of approximately 70,500, with a significant proportion of low-wage and status workers. In collaboration with MA Department of Public Health and the program delivery team (HRiA and AW), the evaluation team has developed survey instruments, interview guides, and analytical approaches, as well as analyzed and reported on baseline and follow-up data and summarized success and challenges in implementation. The evaluation methods are well developed, tested, refined, and considered robust and cost-efficient. Results from the 12 months follow-up data suggest that the program has been successfully operationalized within participating businesses, and short-term improvements in multiple targeted health behaviors or conditions are evident. Based on the prevalence estimates from the baseline and short-term follow-up evaluation data, the cost-saving analysis indicated likely substantial savings in medical care costs in the target populations.

Strong quantitative evidence is much needed for data-driving, evidence-based policy-making, and further refinement of the program. In order to understand the intended, as well as unintended, long-term changes in organizational policies and environmental supports and employee health benefits after participating in WoW, extended follow-up and in-depth analysis of the longitudinal evaluations at both the organization and employee levels are necessary. Such data will help program officials determine the temporal patterns and sizes of long term program impact on employee health, productivity, social and health norms, and resulting cost saving in medical expenditure. These analyses will also help formulate strategies for the sustainability of these efforts.

It should be noted that 71% of Wellness Champions reported that it was very likely that their wellness initiative would continue after the WoW program ends, and 50% reported it very likely that their organization would allocate resources to support their wellness initiative after the end of Working on Wellness seed funding. Considering these, the potential return on investment of the PWTF seed funding is very high, and the WoW program is likely a cost-effective investment in the Commonwealth's healthy and productive workforce.

We are currently analyzing the state's All Payer Claims Database (APCD) before and after WoW program implementation. Due to the delayed access to the APCD data, we are not able to provide analytic results at the time of this report. We expect to finish this analysis and submit an update in late summer 2018. Briefly, we plan to evaluate the effects of WoW on health care utilization and expenditures for employer-sponsored insurance. The APCD is the primary data source for comprehensive health care utilization and expenditures for employer-sponsored health insurance. We will utilize APCD data to evaluate the likely pre-post WoW changes in health care utilization and expenditures among employees within the participating organizations. The analysis will be performed at the aggregated organizational level.

In summary, based on the evident early successes of the WoW program, despite the methodological limitations noted above, the independent evaluation team recommends continuation of the program delivery and evaluation, including the follow priority areas:

- Continued delivery of WoW training and technical assistance services to participating employer organizations.
- Development of new strategies/program designs for broader reach to various segments of the Commonwealth's workforce, including underserved workers (e.g., smaller employers, workers in industry sectors other than health, social service and government agencies or organizations).
- Development of strategies for long term sustainment of WoW programmatic components.
- Evaluation of employee and employer program impacts beyond 1 year following program initiation/implementation.
- Continued evaluation of employer adoption, maintenance, sustainability after "graduation" from WoW.
- Continued collection of long-term program evaluation data for all cohorts, both at the organizational and employee levels.
- Evaluation of changes in health care utilization and expenditures using both self-report and All Payer Claims Data, and provision of return-on-investment analysis.

Concluding Remarks

The Working on Wellness program has succeeded in reaching and recruiting 204 employers who previously offered no formal wellness program and, in general, had few policy or environmental supports at baseline to encourage employee physical activity, nutrition, or tobacco-free lifestyle, or to support work/life balance or other stress reduction measures. The program has the potential to positively affect a workforce of 70,555.

Importantly, this program has reached a large number of small and moderate-size employer organizations, and a substantial number of low-wage, non-college-educated, and racial/ethnic minority workers. A substantial proportion of these employees had moderate to high health risks, especially being overweight or obese and not consuming the recommended amount of fresh produce per day, and inadequate amount of daily physical exercise.

While maintaining its independent evaluator role, the evaluation team provided timely feedback data to program delivery staff and participant organizations, to support the program design and targeted technical assistance. Participating employers received specific feedback about the priorities indicated collectively by their workers, as well as information about timing and other logistical features that would make program activities more accessible. Employers' baseline program goals were predominantly to increase physical activity, reduce stress, and improve nutrition; these were generally consistent with the health goals stated by their employees. Further, employees expressed a great interest in obtaining such services and supports, and, overall, they were individually ready to make positive changes in their health behaviors.

Most employers complied with program instructions to implement changes in organizational policy and the work environment to support healthier behaviors by employees. This is an important strength of the WoW program design, and it is very much to the credit of the program delivery personnel that they were able to provide technical information and support sufficient to achieve this.

While the effectiveness of the interventions needs to be evaluated using long term follow up data, a preliminary cost savings analysis yielded promising data in support of the program. The estimated cost savings for medical care for the combined workforces range from \$0.68 million to \$4.17 million for the top four Action Plan targets together (i.e., healthy eating, physical activity, weight management, and stress reduction). Based on potential medical cost reduction, it is estimated that the WoW program may potentially yield \$0.20 to \$1.22 in direct medical cost reduction from these four target areas for every \$1 investment in the WoW program.

Overall, the Working on Wellness program was very well received by the participating organizations, and highly rated by organizational champions. Many organizations reported that they continue to use the WoW program materials after the program ended. The program has increased organizational policy and environment supports for priority intervention areas including healthy eating, physical activity, weight management and stress reduction. A substantially greater proportion of employees perceived greater policy and environmental supports for healthy behaviors at their workplace. Preliminary short-term data suggested that prevalence rates of unhealthy eating, inadequate exercise and overweight and obesity slightly decreased. However, there was no positive change in prevalence of chronic conditions in the one-year observation. A cost-saving and return-on-investment analysis showed likely substantial reduction in medical costs, and sizable return-on-investment. With continued financial support to the WoW program, greater reach to more workers, reductions in medical costs and higher return-on-investment can be anticipated.

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APPENDICES

Appendix 1: Working on Wellness Cohort Needs and Interests Survey Participation Rates

Summary

Baseline Surveys

161 organizations enrolled in the 4 cohorts completed the Baseline Needs and Interests Survey

17,341 Needs and Interests Surveys were completed by employees

17,099 online surveys were completed (98.6%)

242 paper surveys were completed (1.4%)

44 Spanish surveys were completed (.3%)

122 surveys were completed by individuals under 18 and not included in final analysis
(.7%)

32% was the average response rate across all cohorts in all organizations

8% to 108% was the range of response rates across all 161 organizations in all 4 cohorts

Follow Up Surveys

102 organizations enrolled in the 4 cohorts completed the Follow up Needs and Interests Survey

7,674 Needs and Interests Surveys were completed by employees

7,622 online surveys were completed (99.3%)

52 paper surveys were completed (.7%)

19 Spanish surveys were completed (.3%)

141 surveys were completed by individuals under 18 and not included in final analysis
(1.8%)

22% was the average response rate across all cohorts in all organizations

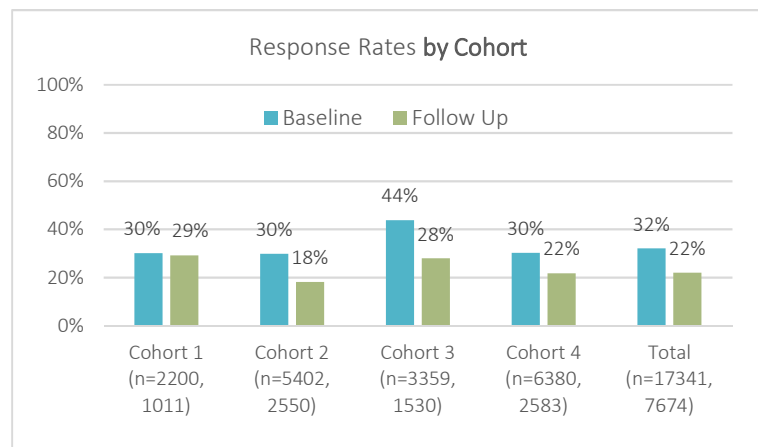
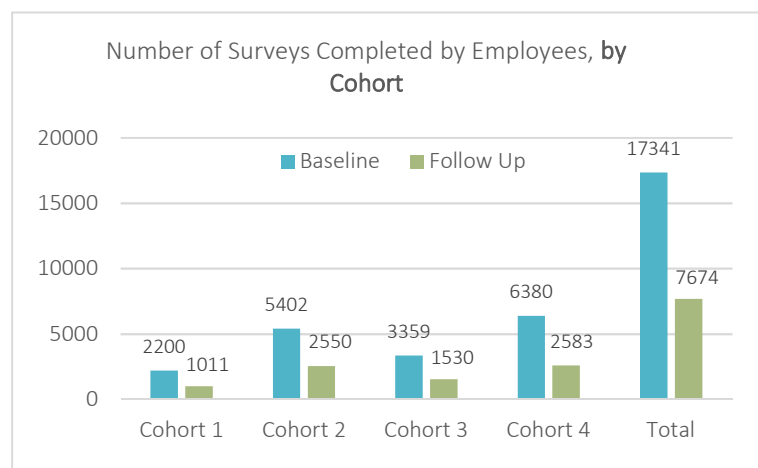
5% to 109% was the range of response rates across all 102 organizations in all 4 cohorts

Employee Level Data

There were 17,341 surveys completed by employees at baseline and 7,674 completed at follow up. This represents a 56% decline in the number of surveys completed pre/post by employees. Cohorts 1, 2, and 3 had similar levels of decline with Cohort 4 having the largest decline at 60%.

Number of Surveys Completed by Employees, by Cohort				
Cohort	Baseline	Follow-up	Decrease	% Change
1	2,200	1,011	-1,189	-54%
2	5,402	2,550	-2,852	-53%
3	3,359	1,530	-182	-54%
4	6,380	2,583	-3,797	-60%
Total	17,341	7,674	-9,667	-56%

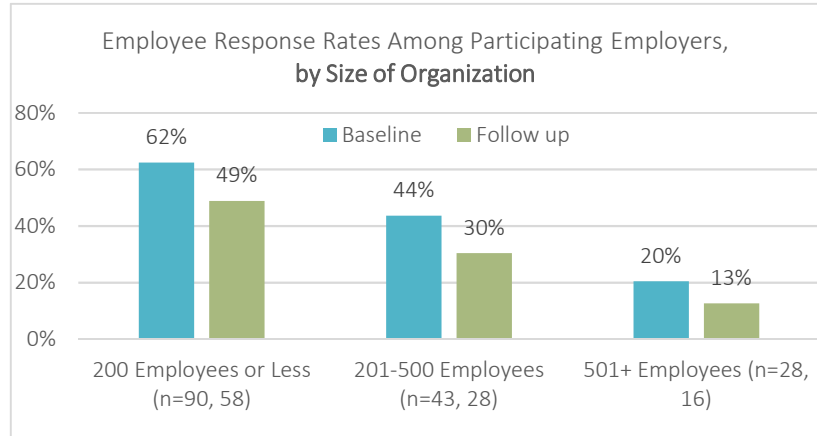
Response rates for baseline Needs and Interests Surveys averaged 32% across the Cohorts as compared to 22% for follow up surveys. Cohort 3 had the highest response rates for the baseline survey (44%) and Cohort 1 had the highest response rates for the follow up survey (29%), slightly above Cohort 3 (28%).



Employee Level Response Rates by Size and Type of Organization

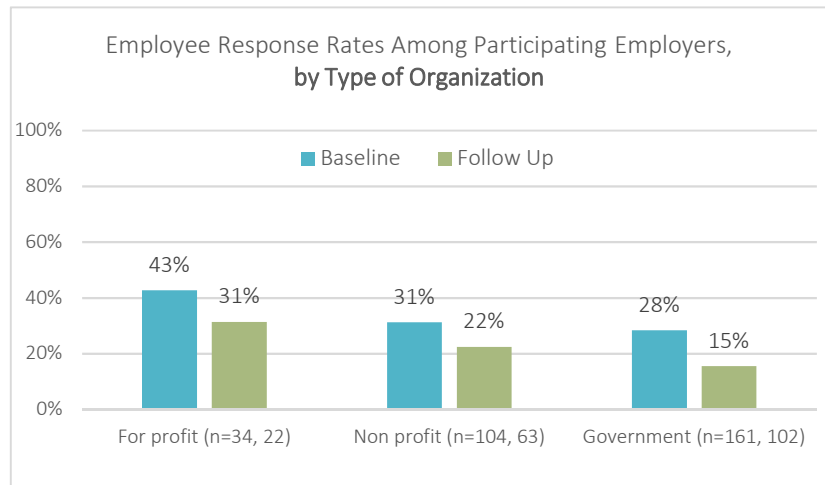
Size of organization

The smaller the organization, the higher the response rate. This held true for both baseline and follow up surveys.



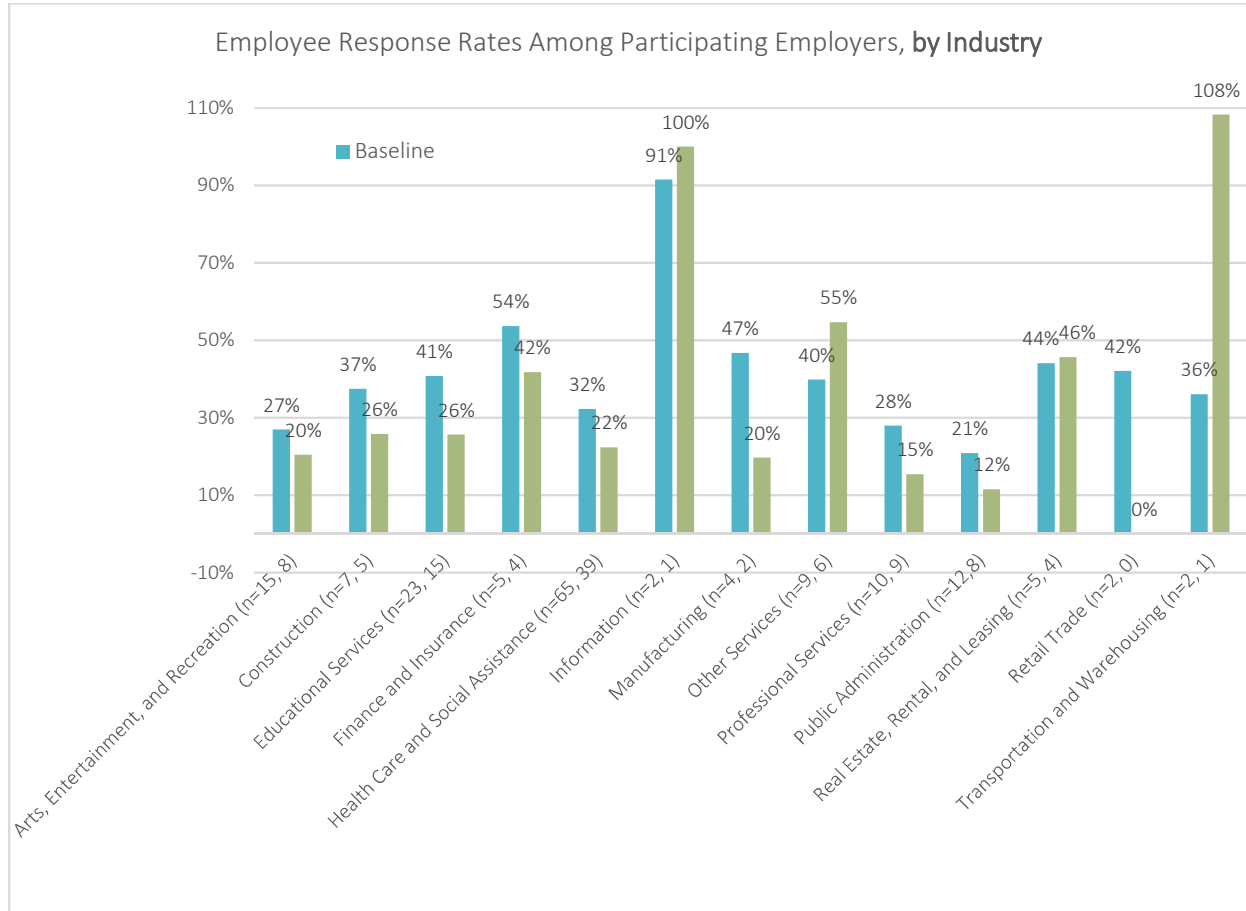
Type of organization

Response rates were highest for the for profit organizations in both the baseline and follow up surveys. When looking at the number of organizations that completed follow up surveys as compared to baseline, the largest decline pre/post was found in the non-profit organizations, and the smallest decline pre/post was in government organizations.



Employee Level Data by Industry

Employee response rates varied by industry, however due to the small numbers no comparative conclusions can be drawn. The graph can be used for illustrative purposes only.



Employer Level Needs and Interests Survey Participation Data

On the employer level, there were minimal changes in participation levels from baseline to follow up.

Size of organization

The median size of organizations that participated at baseline was 175 employees. At follow up, the median was 176.5 employees. At baseline, organizations with 200 employees or less comprised 56% of employers who participated in the Needs & Interests Survey. Organizations with 201-500 employees comprised 27% and those with 501 or more employees comprised 17%. These numbers stayed virtually the same in the follow up survey.

Percent of Employers that Administered Surveys, by Size			
Size (n=baseline, follow-up)	Baseline	Follow-up	Percent point change
200 Employees or Less (n=90, 58)	56%	57%	+1
201-500 Employees (n=43, 28)	27%	27%	No change
501+ Employees (n=28, 16)	17%	16%	-1
Total (n=161, 102)	100%	100%	

Type of organization

At baseline, non-profit organizations comprised 65% of employers who participated in the Needs & Interests Survey. For profit organizations comprised 21% and government organizations comprised 14%. These numbers changed insignificantly in the follow up survey.

Percent of Employers that Administered Surveys, by Type			
Type (n=baseline, follow-up)	Baseline	Follow-Up	Percent point change
Non-profit (n=104, 63)	65%	62%	-3
For profit (n=34,22)	21%	22%	+1
Government (n=23, 17)	14%	17%	+3
Total (n=161, 102)	100%	100%	

Employer Level Data by Industry

On the employer level, there were minimal changes in participation levels from baseline to follow up.

In terms of industry sector, the proportions of organizations from each industry who participated in the Needs and Interests Survey stayed virtually the same from baseline to follow up. Healthcare and Social Assistance organizations comprised the majority of participating organizations in both the baseline and follow up.

Percent of Employers that Administered Surveys, by Industry			
Industry sector (n at baseline, n at follow-up)	Baseline	Follow Up	Percentage point Change
Arts, Entertainment & Recreation (n=15, 8)	9%	8%	-1
Construction (n=7, 5)	4%	5%	+1
Educational Services (n=23, 15)	14%	15%	+1
Finance and Insurance (n=5, 4)	3%	4%	+1
Health Care & Social Assistance (n=65, 39)	40%	38%	-2
Information (n=2, 1)	1%	1%	No change
Manufacturing (n=4, 2)	2%	2%	No change
Other Services (n=9, 6)	6%	6%	No change
Professional Services (n=10, 9)	6%	9%	+3
Public Administration (n=12, 8)	7%	8%	+1
Real Estate, Rental, and Leasing (n=5,4)	3%	4%	+1
Retail Trade (n=2, 0)	1%	0%	-1
Transportation and Warehousing (n=2, 1)	1%	1%	No change
Total (n=161, 102)	100%	100%	

Appendix 2: Additional Employee Needs and Interests Tables

Table #1. Employee Physical Activity Needs and Interests

Needs and Interests	Baseline	Follow-up	Pre-post Change
Met AHA guidelines for PA.*	40% (n=8,325)	42% (n=3,112)	+2%
I am ready to be more physically active.	42% (n=5,800)	46% (n=2,495)	+4%
My employer provides opportunities to be physically active.	68% (n=8,127)	84% (n=3,999)	+16%
Likely to participate in PA programs.	75% (n=10,506)	73% (n=3,991)	-2%
Desire PA policy supports.	81% (n=11,277)	78% (n=4,224)	-3%

* The American Heart Association recommends at least 30 minutes of moderate aerobic activity 5 days per week OR ≥25 minutes of vigorous aerobic activity 3 days per week plus moderate to high intensity strength training 2 days per week.

Table #2. Employee Healthy Eating Needs and Interests

Needs and Interests	Baseline	Follow-up	Pre-post Change
Met USDA guidelines for eating at least 3 servings of whole grains and at least 5 servings of fruits and vegetables daily.	6% (n=13,183)	6% (n=5,130)	0%
I am ready to eat a healthy diet.	40% (n=5,609)	43% (n=2,326)	3%
My employer provides opportunities to be eat a healthy diet.	64% (n=7,159)	79% (n=3,560)	15%
Likely to participate in Healthy Eating programs.	52% (n=7,250)	52% (n=2,818)	0%
Desire Healthy Eating policy supports.	68% (n=9,457)	67% (n=3,623)	-1%

Table #3. Employee Weight Management Needs and Interests (N (%))

Needs and Interests	Baseline	Follow-up	Pre-post Change
Overweight or obese	62% (n=8,636)	61% (n=3,258)	-1%
I am ready to lose weight/maintain healthy weight	47% (n=6,550)	50% (n=2,665)	+3%
My employer provides opportunities to be physically active or eat a healthy diet	77% (n=9,176)	89% (n=4,337)	+12%
Likely to participate in PA programs	37% (n=5,133)	36% (n=1,976)	-1%

Table #4. Employee Stress Management Needs and Interests

Needs and Interests	Baseline	Follow-up	Pre-post Change
Stress affected my health a lot or some of the time in past year.	21% (n=2,958)	20% (n=1,080)	-1%
I am ready to reduce stress.	51% (n=7,112)	52% (n=2,767)	+1%
My employer provides opportunities to manage stress.	53% (n=5,859)	67% (n=2,857)	+14%
Likely to participate in Stress Management programs.	67% (n=9,424)	67% (n=3,664)	0%
Desire Stress Management policy supports.	71% (n=9,894)	69% (n=3,750)	-2%

Appendix 3: Employer Planned and Implemented Wellness Activities

Topic Area	Type of activity	Planned Interventions (n=138 orgs*)		Implemented Interventions (n=91 orgs*)	
		No. of employers	No. of activities	No. of employers	No. of activities
Physical activity	Total number	129	685	80	302
		% activities		% activities	
	Policy		19.7		19.2
	Environmental support		17.7		13.9
	Behavior change		36.5		37.4
	Awareness		26.1		29.5
Healthy eating	Total number	85	273	52	116
		% activities		% activities	
	Policy		16.1		21.6
	Environmental support		34.8		34.5
	Behavior change		21.6		12.1
	Awareness		27.5		31.9
Weight management	Total number	36	64	31	44
		% activities		% activities	
	Policy		10.9		0
	Environmental support		4.7		2.3
	Behavior change		42.2		43.2
	Awareness		42.2		54.5
Stress reduction	Total number	49	135	24	58
		% activities		% activities	
	Policy		11.9		3.4
	Environmental support		20.0		22.4
	Behavior change		42.2		39.7
	Awareness		25.9		34.5
Occupational health and safety; Ergonomics	Total number	13	29	11	14
		% activities		% activities	
	Policy		13.8		14.3
	Environmental support		34.5		57.1
	Behavior change		6.9		7.1
	Awareness		44.8		21.4
Tobacco cessation	Total number	0	0	1	1
		% activities		% activities	
	Policy		0		0
	Environmental support		0		0
	Behavior change		0		0
	Awareness		0		100

* Data obtained from 138 employers that submitted Worksite Wellness Action Plans and 91 organizations that submitted Worksite Wellness Evaluation Reports.

Appendix 4. Expected Health Benefits Among Employees at Risk From Published Studies of Employer Wellness Programs

(Change computed as percentage of baseline value, relative to control group where possible)

A. Healthy Eating			
Types of activities	No. of activities proposed by employers	Examples of published interventions	Behavior change; Change in health condition prevalence
Information (only)	66	Geaney [2016]: One study arm = nutrition education only	Change at 7-9 months follow-up: -0.7% in mean BMI -5.9% in systolic BP -4.1% in diastolic BP
		Gans [2015]: 3 groups for nutritional information: NT (Non-tailored written information); TW (Tailored written information); TW+TV (Tailored written + Tailored video information)	Changes at 8 months: -0.3% dietary fat for TW -0.5% dietary fat for TW+TV Fruit & vegetable intake 1.33 times higher in TW+TV
Physical access	131	(see “multi-component programs,” below)	(see “multi-component programs,” below)
Financial access/support	18	French [2003]: Prices lowered by 50%.	+93% purchases of lower-fat snacks; increased intake of fresh fruit (4-fold) and baby carrots (2-fold).
		Alinia [2010]: Free fruit (one per person per day).	Change in food intake at 5 months: +38.8% fruit +12.3% dietary fiber -14.3% sugar +10.7% vegetables
Financial incentives, rewards, staff competitions, challenges	11	Racette [2009]: on-site Weight Watchers program, team competitions, participation rewards, incentives (& other components)	Change at 12 months: +30% fruit/vegetable intake +25% of participants in lowest risk group
Individual or group counseling, workshop, etc.	51	(see “multi-component programs,” below)	(see “multi-component programs,” below)
Point-of-purchase labeling	0	(see “multi-component programs,” below)	(see “multi-component programs,” below)
Multi-component		Bandoni [2010]: menu planning,	Increased intake of fruits

A. Healthy Eating

Types of activities	No. of activities proposed by employers	Examples of published interventions	Behavior change; Change in health condition prevalence
programs (at least 2 of the components above)		food presentation, motivational strategies.	& vegetables in 6 months: +17.3% crude estimate, +11.2% adjusted
		Geaney [2016]: One arm = combined education and environmental changes in cafeteria, lower prices for fresh fruit.	Changes at 7-9 months: Lower intake of fats, salt, sugar, total energy. -1% in mean BMI -0.7% in waist circ.
		Johnson [2016]: Educational resources on PA and eating (print materials, weekly toolbox, tips, tracking posters, team logbooks); 6-week competition among employees and worksites.	No difference after 6 months in daily intake of fruits and vegetables
		Da Silva Franco [2013]: workshop with nutritionists; group talks at company events; environmental supports.	Change at 9 months: +38% in intake of fruits and vegetables
		Salinardi [2013]: Education by nutritionist; "lifestyle modification;" program for structured maintenance of weight-loss.	Change at 6 months: -9.5% body weight / BMI -10.8% systolic BP -9.5% diastolic BP -7.6% total cholesterol intake -11.5% sugar intake
		French et al. [2010a]: Increased availability and reduced price of healthier foods.	After 18 months: + 10-42% sales of healthy food items
		French et al. [2010b]: Nutritional information; healthier items in vending machine items; reduced prices for healthy items; fruit & vegetable intake competitions; daily weigh-ins, farmers market; behavioral improvement programs.	Changes at 18 months: -17% energy intake +5% fruit & vegetable intake 0% BMI
		Morgan [2011]: printed handbook; face-to face weight loss information session; encouragement to monitor weight, food intake & exercise	Change at 6 months: 1.8% weight loss +15% more participants lost >5% of initial body weight

B. Physical Activity			
Types of activities	No. of activities proposed by employers	Examples of published interventions	Behavior change; Change in health condition prevalence
Information	163	(see “multi-component programs” below)	(see “multi-component programs” below)
Physical access	101	Taylor [2010]: 15-min exercise classes led by facilitator	+8% in daily steps +12% in HDL lipids (i.e., -12% high cholesterol)
		Pedersen [2009]: classes for specific resistance training, or all-around physical exercise.	+10% in VO2 max -2.2% in body fat (similar results for both intervention types)
		Rebold [2015]: 12 week on-site exercise class program, 3x/week for one hour, certified instructor	-1.56% in average BMI
Financial access or support	59		
Incentives, rewards, competitions, challenges	73	Shaw [2007]: Wear pedometer for 3 months; eligible for prize if submit all logs	+8.6% in daily step count
		Macniven [2015]: team pedometer-based program to reach 10,000 steps/day.	+6% in # taking 10,000 steps/day +18.5% in #steps/day
Individual or group counseling, training, workshop, etc.	114	Osteras [2006]: individualized exercise planning.	+11.1% in # of days/week with high-intensity activity > 10 min. +16% in # of days/week with mod-intensity activity > 10 min. +3.9% in VO ₂ max
Point-of-decision prompts		Swartz [2014]: hourly prompts to get out of chair, or to get out of chair and walk around	Stand-only: +14% in total stepping time; no change in # of steps/day. Stand/walk prompts: +29% in total stepping time; +35% in total for stand/walk prompts.

B. Physical Activity			
Types of activities	No. of activities proposed by employers	Examples of published interventions	Behavior change; Change in health condition prevalence
Policy supports	83	(see “multi-component programs” below)	(see “multi-component programs” below)
Team-building, social supports	60	(see “multi-component programs” below)	(see “multi-component programs” below)
Multi-component programs		Haines [2007]: Information via computer-based educational programs; log daily steps via pedometer.	+4.8% participants with "normal" BMI -1.03% in mean BMI -3.4% in number with stage 1 or 2 hypertension. - 5.45% in average blood glucose. - 3.18% in average total serum cholesterol.
		Johnson [2016]: Print materials on physical activity and eating behaviors; implementation resources (weekly toolbox, tips, tracking posters, team logbooks); 6-week “friendly competition” among employees and worksites	At 6-months follow-up: +58.98 minutes/week vigorous physical activity; +53.30 minutes/week moderate physical activity. +14% men meeting recommended levels of moderate to vigorous physical activity (150 min./ week), versus baseline.

C. Stress reduction			
Types of activities	No. of activities proposed by employers	Examples of published interventions	Behavior change; Change in health condition prevalence*
Information	27	Cook [2007]: web/print materials on stress, nutrition, and physical activity	Change at 3 months: -4.5% in mean perceived stress -4.4% in mean symptoms of distress
Physical access	19	Engen [2012]: weekly 15-min. chair massages for 10 weeks	Change at 10 weeks: -16.4% in mean perceived stress -17.2% in mean anxiety
Individual or group counseling, training, workshops, etc.	9	Allexandre [2016]: 8-week online stress reduction materials plus expert-led group (weekly 1-hour meetings)	Change at 1 year: -29.1% in mean perceived stress
		Hartfiel [2012]: 8-week DruYoga (50-min. 1x / week), plus DVD for home use	Change at 8 weeks: -11.3% in mean perceived stress
		Wolever [2012]: 12-week Viniyoga stress reduction program or Mindfulness at Work stress management program	Change at 12 weeks: -34.4% in mean perceived stress -27.4% in mean productivity loss
		Bazarko [2013]: 8-week mindfulness classroom/telephonic program	Change at 4 months: -39.4% mean perceived stress +10.4% mean general health +35.1% mean mental health
Policy supports *	12		
Team-building, social supports	16		
Financial access/support	5		

* Percentages represent change in measurement tool mean scores.