
METHODOLOGIES AND OUTCOMES TO REDUCE METABOLIC HEALTH RISKS, IMPROVE WORKPLACE PRODUCTIVITY AND IMPLEMENT A CULTURE OF HEALTH CHANGE FOR EMPLOYEES OF THE STATE OF WASHINGTON

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ABSTRACT

Objective: The Washington State legislature funded and directed the State's Health Care Authority (HCA) to implement a demonstration project to improve the health of state employees by working directly with state agencies. Washington Wellness, the division of HCA that operates the state employee health and productivity program, named the demonstration project the Healthy Worksite Initiative (HWI). This paper describes the methodologies and outcomes of a comprehensive program focused on changing the workplace culture of several Washington State agencies to promote employee lifestyle behaviors that improve health and work performance.

Methods: The participating state agencies were selected through a request-for-proposal process, and the employees in those agencies received monetary incentives to participate and complete the HWI. Employees who volunteered were screened for metabolic risks through a comprehensive health risk assessment that included the Work Limitations Questionnaire (WLQ) productivity assessment, laboratory tests (fasting blood glucose, lipid profile) and physical measurements (height, weight, blood pressure, waist circumference). Participants chose a six- or 12-month intervention with on-line and on-site health information and education, nutrition and exercise training and healthy lifestyle choices and behaviors. The baseline screenings were repeated at six and 12 months to measure changes due to participation in the HWI.

KEYWORDS: workplace performance, presenteeism, co-morbidities, metabolic health risks, work place culture of health, change agent, culture package, culture concepts, collaborative learning

Results: Seven agencies with a total of 6,290 eligible employees had 2,418 (38%) employees participate. Seventy-two percent of the risks identified in the screening were previously unknown by the employees prior to the screenings. Thirty-one percent of participants lost six or more pounds in six months, 39% improved or eliminated elevated blood pressure, 28% improved or eliminated elevated total cholesterol and 13% improved or eliminated elevated glucose levels. Forty two percent eliminated two or more risk factors. There was a 24% improvement in the WLQ scores, indicating improved work place performance.

Conclusions: The HWI provided valuable insights into the role of the agency in employee health, the power of integrating health survey results with biometric data, and the health risks present in a representative sample of the state employee population. As a result of the HWI outcomes, the project has been funded by the Legislature for an additional two years. Building on what was learned from HWI, Washington Wellness has developed criteria that will be used to "designate" agencies that have established the internal infrastructure necessary to develop a "Culture of Health." These agencies, designated as "Washington Wellness Worksites" in Phase 2 of the initiative, will create their own "second level" of designation based on the capacity for producing health and productivity improvement outcomes. Additionally, the criteria will become the measurement standard and a training focus for all the agencies and institutions of higher education within the state system. Outcomes from the Healthy Worksite Initiative and from Washington Wellness Worksite projects will be incorporated into the value-based process as the State continues to evolve the relationship between its agencies as employers and their employees regarding health and healthcare.

INTRODUCTION

Metabolic health risks and diseases – hypertension, diabetes, abnormal cholesterol, and excess weight – are among the most common and expensive health conditions in the worksite. In addition to direct healthcare costs, metabolic health risks and diseases can have a major impact on indirect costs including workplace performance.^{1,2,3,4,5,6,7,8,12}

This paper describes the methodologies and outcomes from a comprehensive program focused on changing the workplace culture of several Washington State agencies to promote employee lifestyle behaviors that improve health and work performance. The agency organizational structure was “leveraged” to increase employees’ engagement with health screening and preventive services within the state system. Incorporating components of the agency-based Healthy Worksite Initiative into a “value-based benefit” structure for state employees was a second major outcome of the initiative.

BACKGROUND

The Washington State legislature directed the state’s Health Care Authority (HCA) to implement a demonstration project to improve the health of state employees by working directly with state agencies. Washington Wellness, the division of HCA that operates the state employee health and productivity program, named the demonstration project the Healthy Worksite Initiative (HWI). Washington Wellness invited the Institute for Health and Productivity Management (IHPM), The Center for Strategic Innovation (CSI) and the University of Washington Health Promotion and Research Center to partner in the initiative.

The legislation mandated HWI to measure a minimum set of outcomes to include an increase in the appropriate use of preventive health services and the reduction of:

- risk factors related to diabetes;
- high blood pressure;
- high cholesterol;
- tobacco consumption;
- population that is overweight or obese;
- risk factors related to absenteeism.

The legislation provided \$600,000 for implementing the HWI project for the 2007-09 biennium. Washington Wellness decided to distribute all the funds to the participating agencies to be used internally for employee incentives and operating costs. Project development, management and evaluation funding was incorporated into the Washington Wellness budget. The Institute for Health and Management (IHPM) provided significant “in-kind” resources to the project. The HWI operated within the July 2007 – June 2009 biennium fiscal year.

Partners/Stakeholders in the Healthy Worksite Initiative (HWI)

Washington Wellness

Washington Wellness operates the employee health and productivity management program for the state. Its’ co-sponsors

are the Director of the Health Care Authority and the Secretary of the Department of Health. Washington Wellness’ business model is to work directly with the 90+ agencies and institutions of higher education with 50 employees or more that employ the majority of the approximately 140,000 state employees.

The Institute for Health and Productivity Management (IHPM)

IHPM, through its Value-based Health Initiative, provided essential assistance to the project. Its mission includes identifying and spreading best practices in health and productivity management through research and demonstration projects. HWI was selected as one of IHPM’s national “field studies.”

IHPM is a global enterprise that exists to establish the full value of employee health in the workplace and maximize its impact on business performance. It does this by:

- collecting and interpreting health data;
- measuring the loss of productivity related to chronic health conditions;
- managing interventions to improve health and productivity;
- communicating results to larger audiences through conferences and publications;
- educating employers and other stakeholders on health and productivity management (HPM)

IHPM has established Work Place Centers to help employers identify and manage the impact of costly and prevalent health issues. The Centers advance appropriate prevention, diagnosis, treatment and management of health risks and chronic medical conditions that have significant impact on employee health and productivity.

The Center for Metabolic Health in the Work Place was created as part of a strategic priority to improve the health and productivity of employees with metabolic and related cardiovascular diseases. It promotes healthy behaviors, as well as appropriate management of the indicators of metabolic health risks and conditions. This integrated approach of behavior change and health management reduces the incidence and severity of metabolic health risks and diseases and their impact on workplace performance. The Center accomplishes its objectives through interventions such as the HWI for employees of Washington State.

IHPM accepts support for research and education from various types of program development partners. Financial support and in-kind services for the WHWI were provided by Abbott, Novartis, sanofi-aventis, and The Change Companies.

CSI Solutions

CSI Solutions is experienced in working with the quality improvement processes chosen for the project – the IHI Breakthrough Series, called the “Collaborative” model. CSI Solutions’ principles were used as a guide in applying the Collaborative model process and are aiding in its evaluation.¹³

CSI Solutions’ consultants are experts in translating research into best practices, measuring systemic improvement, and leveraging the strength of community partners toward the

unified goal of improving health. Kathy Reims, MD, and Roger Chaufournier provided consultation and coaching in development of the Healthy Worksite Initiative Change Package and improvement measures, and in implementing the change management curriculum for participating agencies.

University of Washington Health Promotion and Research Center (UW-HPRC)

The UW-HPRC is the overall evaluator for Washington Wellness and for HWI. The team from the Health Promotion Research Center (HPRC) has been involved in the design of data collection tools and the structure of the evaluation.

The HPRC conducts community-based research with the goal of promoting the health and well-being of middle-aged and older adults, particularly those with low-incomes and in ethnic/cultural groups that are at increased risk of chronic disease.

The HPRC works with organizations that reach large numbers of individuals, including employers, business groups, not-for-profit organizations, community networks, and governmental agencies. It is located in the Department of Health Services in the School of Public Health at the University of Washington, in Seattle.

State of Washington

The State of Washington was a HWI stakeholder in the following ways:

- learning new business approaches for managing employee health;
- understanding methodology and the value of quantifying the prevalence and severity of major employee health problems through an integrated process including a personal health survey, laboratory tests and physical measurements;
- categorizing employee health management costs as an investment in human capital requiring the same decision-making process as other types of capital investments;
- developing an active rather than passive role in managing employee health;
- evaluating the impact of chronic illness on employee performance and organizational productivity;
- quantifying lost productivity in employees at work due to chronic health conditions that cause functional impairment;
- improving the “bottom line” by improving employee health.

State of Washington Employees

The State of Washington employees were HWI stakeholders in the following ways:

- identifying many previously unrecognized metabolic risk factors and diseases by participating in screenings and measurements for baseline health status;
- awareness and understanding of the significance of metabolic risk factors and diseases;
- engaging in education, training and behavior compliance programs that improve health and reduce risks;

- learning to be a better partner in managing their own care through improved communications with their healthcare providers;
- learning how to become better purchasers and consumers of health care products and services;
- understanding the impact of lifestyle behaviors on health and health risks.

Metabolic Health / Metabolic Syndrome

Metabolic syndrome is defined as a combination of health risk factors that includes enlarged waist circumference (central obesity), elevated fasting blood glucose, elevated blood pressure, elevated triglycerides and reduced HDL cholesterol. An individual must have any three of the five risk factors to be given a diagnosis of metabolic syndrome.^{9,11,12}

The HWI focused on these risk factors as well as additional risks including elevated body mass index (BMI), elevated LDL cholesterol, elevated total cholesterol, and the HDL/Total cholesterol ratio. HWI did not address hemoglobin A1C levels, thyroid function assessment or a rare group of metabolic disorders known as inborn errors of metabolism.

Atherosclerotic vascular disease (ASVD) is clearly the major outcome from metabolic risks and diseases. ASVD occurs when blood lipids (fats), platelets and other elements create obstructions (plaques) in arteries carrying blood from the heart to cells in all parts of the body. The cells can become deprived of oxygen, function poorly or even die.¹² This is the basic problem underlying heart attack, heart failure, stroke, TIA or mini-stroke, some types of kidney failure and peripheral vascular disease (reduced blood supply to the lower extremities.)

The risks and diseases of metabolic health are co-morbidities for each other as well as for other diseases. A co-morbidity raises the likelihood of the development of another condition and may make another condition more difficult to manage. For example, obesity raises the risks of developing dyslipidemias and type 2 diabetes. Heart attack, stroke and reduced blood supply to the legs are more likely to develop in people with metabolic health risks. Metabolic health is strongly impacted by behavioral lifestyle factors, including choices regarding food, exercise, alcohol and tobacco.¹²

Metabolic risks and diseases are interrelated and require a multifactor approach for risk elimination and reduction. The WHI focused on the value of eliminating risk factors (e.g., moving from four to three risk factors) AND the value of reducing the magnitude of risk factors (e.g., moving total cholesterol from 275mg% to 225 mg% even if the target level of < 200mg% was not attained).

The participants were educated that a risk factor that was reduced or eliminated during the project could return to the pre-project level if the new behavior and lifestyle choices learned and employed during the project were not continued. Thus, the risk factors will always exist in either one or two categories – either controlled (eliminated) or not controlled (reduced.) This communication was used to educate the participants.

METHODS

The objective of this demonstration project was to define and strengthen the role of Washington State government agencies in improving workforce health,¹⁰ and productivity.¹¹

Seven agencies were selected to participate through a competitive request-for-proposal process. The competitive process ensured that the agencies selected were the “early adopters” and would be capable of and willing to engage in the innovative and difficult work of changing culture, environment, and policies.

The agencies varied in size, type of work, and culture as illustrated in Table 1 (Participating Agency Demographics). Together, they represented a total employee population of 6,011.

The fact that “early adopter” agencies were identified and that individual participants were volunteers to the project could introduce bias into generalizations from the approximately 140,000 state employees. Control groups and mandatory employee participation were not acceptable for cultural and potentially discriminatory reasons.

Per the decision of the state team managing the HWI, individual agency project outcomes were not reported outside of the management team. This decision was made to avoid competition among agencies and to focus the agencies on internal improvement in health and productivity of employees, rather than trying to “beat” another agency’s scores.

The overarching intervention implemented by all participating agencies was the testing of a strategic framework that defined a comprehensive set of high-level organizational changes required to take place in order for workforce health and productivity to be improved. This strategic framework is called the “Healthy Worksite Initiative Change Package.” Its development was patterned after the Chronic Care Model of Improving Chronic Illness Care.^{13,14}

An expert stakeholder panel was convened to develop the change concepts based on current research, their experience and best practices from the literature. Figure 1 shows the categories of change in the Healthy Worksite Initiative Change Package.

These Change Concepts identify the high-level categories of change that need to be made across the system to bridge the gap between best practices and the current system. The system in this case is defined as agency processes, actions, and policies which create the work culture. For each Change Concept, several key change ideas have been outlined along with proven actions agencies can take to improve employee health and productivity. Here is a brief description of some of the Change Concepts.

Understand Your Population – Compile a profile of

Table 1. Participating Agency Demographics

Agency	# of Employees	# of Employees Participating	% Participation
Attorney General’s Office	1,300	506	39%
Department of Financial Institutions	190	111	58%
Department of Natural Resources	600	198	33%
Department of Health	1,495	615	41%
Department of Social and Health Services - two divisions	1,391	398	27%
Employment Security Department - select divisions and sites	950	525	55%
Higher Education Coordinating Board	85	66	77%
Healthy Worksite Initiative - Total	6,011	2,418	40%

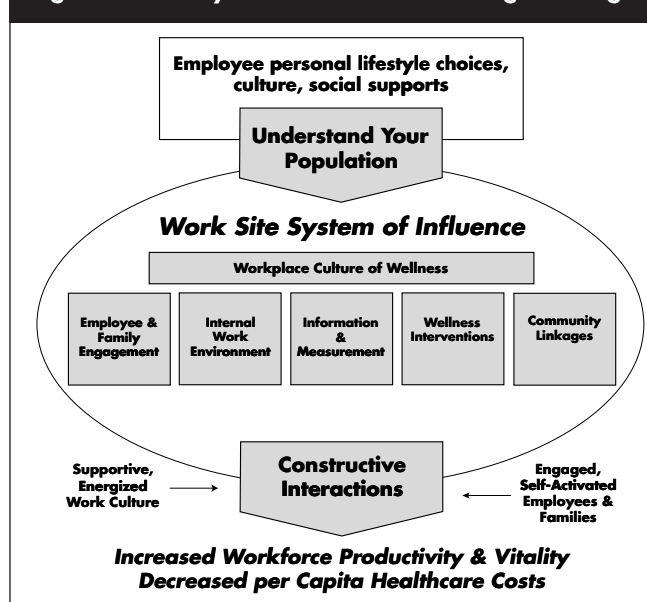
health-related characteristics of the agency’s workforce and use the information to plan health and productivity management strategies.

Reshape the Internal Work Environment to Foster Wellness – Provide facilities that support healthy lifestyles and an infrastructure to carry out the health and productivity management work plan.

Engage Employees and Families – Use effective strategies including communication, social marketing, and incentives to engage employees and families in improving their health.

Using this clearly defined change package, the agencies participated in an 18-month learning process modeled after the Institute for Healthcare Improvement’s Breakthrough Series Collaborative.^{13,14} The Healthy Worksite Initiative Collaborative provided participating agencies with a structured

Figure 1: Healthy Worksite Initiative Change Package



forum that fostered sharing among the teams to achieve rapid cycle change and improvement. Agency teams received proven tools and incentive strategies to test and refine within their own work cultures. The questions to be answered were: does this approach improve workforce health and productivity in the participating agencies, and does the approach work within the culture of state agencies? The outcomes of HWI demonstrate “yes” answers to both questions.

Interventions

Two of the interventions – implementation of an integrated onsite biometric screening and computerized health survey, and implementation of the HWI Change Concepts across the organization – are described below. These interventions focused on both the organizational level and on individual employees who had metabolic risk factors. These individual-level interventions included Abbott’s Changes That Last a Lifetime® program of extensive nutrition and exercise training and behavioral health modification tailored for this population from the popular Body-for-LIFE™ training program.

Changes That Last a Lifetime® included in-person sessions, online reporting and tracking tools, physical activity and nutrition recommendations tailored to the individual’s preferences and delivered by daily e-mail, and access to a certified personal trainer via e-mail or telephone. Other interventions varied by agency, and included interactive journaling offered by The Change Companies, brown-bag lunch informational sessions, printed materials indicated to assist individuals in recording and tracking changes, and incentivized physical activity challenges. To drive participation in the health risk screenings and on-line survey as well as the interventions, agencies offered incentives ranging from individual gift cards up to \$50 in value to drawings for larger prizes.

Lab Results	At Risk
Fasting Glucose	>= 100 mg/dL
Total Cholesterol	>= 200 mg/dL
HDL Cholesterol	Female < 50 mg/dL Male < 40 mg/dL
Total Cholesterol/HDL Ratio	> 3.5
LDL	>= 100 mg/dL
Triglycerides	>= 150 mg/dL
Physical Measurements	
Blood Pressure	Systolic >= 120 mm/Hg Diastolic >= 80 mm/Hg
Waist Circumference	Female >= 35 inches Male >= 40 inches
BMI	Underweight < 18.5 Overweight >=25.0 to < 30.0 Obese >= 30.0

Measurement and Reporting

Health risks, health-related productivity, and perceptions of participants were measured to determine the effectiveness of the approach and the improvement in workforce health and productivity.

Employees of participating agencies were encouraged to complete an online health survey and onsite biometric screening at three six-month intervals starting in June 2008; subsequent screenings were held in December 2008 and June 2009. This intervention served three purposes: 1) to discover what workforce health data were needed by agencies to drive improvements in their health and productivity management program; 2) to test the efficacy of, and provide employees access to, onsite biometric screening and integrated self-report survey and biometric screening data; and 3) to learn what survey and biometric data had sufficient value potentially to be integrated into the benefit structure or a total population health profile.

The IHPM proprietary Health Risk Assessment (HRA) was the online survey used. It is a comprehensive employee health and productivity survey designed to assess the prevalence of chronic diseases and health risks, and to gauge how they affect quality of life, functional capacity and productivity at work.

The HRA used in the HWI focused on metabolic health – including diabetes, dyslipidemias, hypertension and obesity – and on lifestyle behavioral choices, including tobacco use, sedentary life style, unhealthy eating habits and other co-morbidities of the metabolic diseases. In addition, it contained the Work Limitations Questionnaire to measure health-related functional impairment, or “presenteeism.”

Health risk screenings were offered at each of the worksites. The screenings were performed by a contracted vendor who used nationally accepted protocols, including a finger stick to obtain blood for the lipid and glucose tests. Participants were instructed to fast for 12 hours prior to the finger stick. Each screening included these clinical and physical measurements:

- Fasting Blood Glucose (FBG)
- Lipids – cholesterol, Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL), triglycerides, total cholesterol/HDL ratio
- Blood Pressure (BP)
- Waist Circumference
- Weight
- Body Mass Index (BMI)

Thresholds for health risk levels were set for both the health survey and screening results. The thresholds for the health risk screening measures are shown in Table 2 (At Risk Screening Measurements). The survey questions and answers used to predict health risks are available upon request from the authors.

The thresholds were set intentionally low to capture people early in the potential disease process. The focus of the worksite interventions was to support employees in reversing risk trends and delaying or preventing chronic disease. The health survey identified lifestyle behavior choices that are co-morbidities of diabetes, hypertension, cholesterol problems, and excess weight.

Cohorts

The results from the screenings and surveys were reported at three levels – the entire HWI participating employee population, the agency’s HWI participant employees, and the individual employees. Individual employees received a confidential health report explaining the results and recommending follow-up with their own healthcare provider, as well as additional steps.

For the agency and entire HWI population reports, three cohorts were analyzed:

- pure pre and post = employees who participated in both the June 2008 and June 2009 survey and screening;
- cross Sectional = EVERYONE screened during Round 1 (R1), Round 2 (R2), and Round 3 (R3) including people who were only screened once;
- Changes That Last a Lifetime® = employees who participated in Changes That Last a Lifetime® and had a second screening done either in December 2008 or June 2009.

Qualitative Data

Qualitative data regarding perception of and satisfaction with the approach were collected from agency team members, senior managers, and participating employees. The agency team members participated in a “harvesting session” near the end of the project to consider lessons learned and recommendations for next steps. Key informant interviews were conducted near the end of the project with senior managers in four of the participating agencies. Senior managers were asked for their perception of the Healthy Worksite Initiative and its value to their agency. Employee satisfaction questions were included in the second and third rounds of the health survey.

RESULTS

Screening and Survey Results

Two thousand four hundred eighteen (2,418) employees representing 38% of the total eligible population participated in at least one screening. Individual agency participation rates ranged from 23% to 76%. Detailed demographic data are provided in Table 3 (Demographics). Agencies reported that the participating population demographics were similar to the total eligible population.

A total of 3,898 screenings were conducted, which identified high levels of risks. Table 4 (Identified Risks) categorizes these risks and shows the percentage of screened employees identified as being at risk:

The highest percentage of at-risk employees identified by the screenings was in the category of Body Mass Index (BMI) with 66% showing a BMI \geq 25; 63% of screenings identified employees at-risk for high blood pressure, 55% of employees

Total Participants	2,418
Completed at Least 1 Round	2,385
Completed at Least 2 Rounds	1,074
Females	74%
Males	26%
White/Caucasian	80%
Black/African American	4%
Hispanic	4%
Aisan/Pacific	8%
Native American	1%
Other/ Unknown	3%
Mean Age	44
18-24	4%
25-44	44%
45-64	51%
65+	2%

screened had elevated risk levels of LDL cholesterol; and 52% of employees screened were at-risk because of physically inactivity.

Although risks were identified in more than 65% of screenings, employees were often not aware of their risks. Table 5 (Newly Identified Risk Factors) shows that 72% of the risks identified in the screenings were previously unrecognized by the

Risk Category	Description	% with Risk Identified
Blood Pressure	Systolic \geq 120 and/or Diastolic \geq 80	63%
Lipids	Total Cholesterol \geq 200 mg/dL	32%
	HDL Cholesterol Women $<$ 50 mg/dL Men $<$ 40 mg/dL	40%
	Total Cholesterol / HDL Ratio $>$ 3.5 mg/dL	50%
	LDL \geq 100 mg/dL	55%
	Triglycerides \geq 150 mg/dL	32%
Diabetes	Fasting Glucose \geq 100 mg/dL	21%
Physical Activity	\leq 2 days/wk OR $<$ 15 minutes/day	52%
BMI	Overweight (BMI \geq 25.0 and $<$ 30.0)	31%
BMI	Obese (BMI \geq 30.0)	35%

Table 5. Newly Identified Risk Factors

Condition	# of Identified Factors	# Previously Known	# Newly Identified	% At Risk Newly Identified	% of Total Participants Newly Identified*
Elevated FBG	615	192	423	69%	18%
Elevated BP	1,639	401	1,238	76%	52%
Elevated Triglycerides	767	114	653	85%	28%
High Total Cholesterol	865	219	646	75%	27%
Low LDL	911	164	747	82%	32%
High LDL	1,337	252	1,085	81%	49%
Waist Circumference	1,192	663	529	44%	23%
Total	6,461	1,786	4,675	72%	32%

4,675 previously unrecognized cases out of 6,461 total cases. 72% of previously unrecognized cases identified by HWI.

* Note: percentage of 2,385 total participants who participated in at least one round of screenings.

or eliminated high LDL, 37% improved or eliminated high blood pressure, 28% improved or eliminated elevated total cholesterol and 13% eliminated the risk factor of elevated fasting blood glucose. Improvements were notable in reduction of BMI (17%) and increased HDL (12%).

In addition to the changes in BMI shown above, among those employees participating in the Changes That Last a Lifetime® program who started with a BMI of >= 25, 61% maintained or lost weight, and 31% lost six or more pounds, based on a six-month follow-up screening. Figure 3 (Weight Changes) illustrates that the percentage of employees maintaining or losing weight was greater among those participating in the CTLL intervention compared with the larger cohort of all employees who participated in at least two rounds of screenings.

employees. More than 69% of the employees at-risk for elevated fasting blood glucose, blood pressure, triglycerides, total cholesterol, high LDL and low HDL were not aware of their risk.

Data from employees who participated in more than one round of screening showed improvement or elimination of risk factors (Figure 2 - Percentage of Participants Who Eliminated or Improved Risk Factors). Among risk factors measured and based on results of the second or last screening, 39% improved

Participation in the CTLL program also showed stronger results for the number of risk factors eliminated and improved. Figure 4 (Eliminated Risk Factors) shows that 42% of employees participating in CTLL eliminated two or more risk factors, compared with 36% of those who did not participate.

Figure 5 (Improved Risk Factors) shows similar results for the number of risk factors improved but not eliminated; 51% of those who participated in CTLL improved two or more risk factors versus 45% of non-participants.

Among employees in the pre-post cohort (those who participated in two screenings 12 months

Figure 2: Percentage of Participants Who Eliminated or Improved Risk Factors

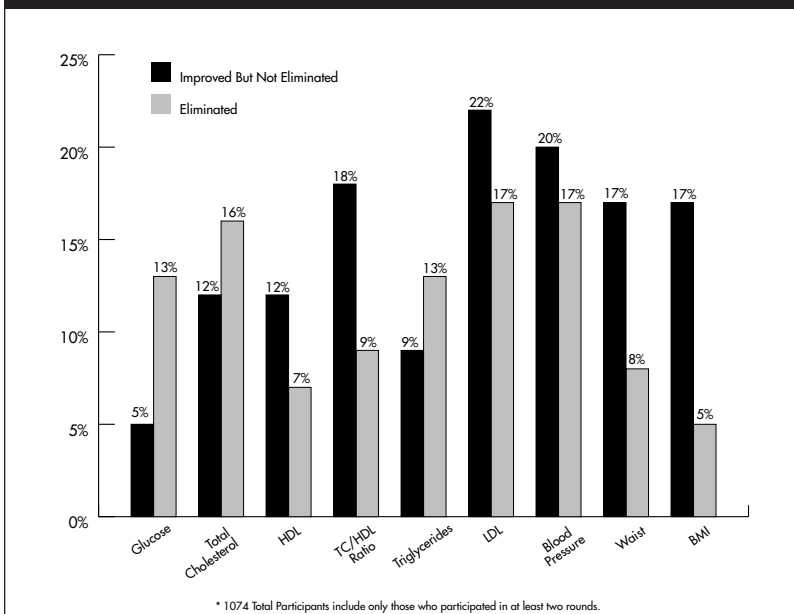
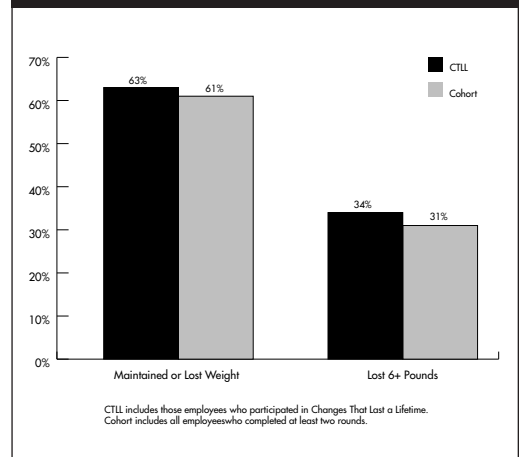


Figure 3: Weight Changes (CTLL vs Cohort)



apart) who did not report having diagnosed diabetes, the number of modifiable risk factors for developing diabetes was reduced (Figure 6 - Diabetes Risk Factors); risks chosen for analysis included physical inactivity, BMI \geq 25, hypertension, lipid levels and fasting blood glucose \geq 100.

Among employees in the pre-post cohort, the number of modifiable risks for total cholesterol, HDL, LDL and triglycerides also was reduced (Figure 7 - Cholesterol). The number of employees with three lipid-related risk factors decreased by six percentage points (or 14%) between June 2008 and June 2009, while the percentage of employees with 0 risk factors increased by four percentage points (or 18%).

What accounted for these changes in metabolic risks? Employees reported taking the following actions to improve their health (Table 6 - Actions Taken by Employees).

Among employees who participated in both the June 2009 and an earlier screening, 26% reported seeing their primary care doctor, 42% made a change in their diet, 40% increased physical activity, and 8% began taking or made changes to their medication. Ten percent stated they took other actions; however, the survey did not record specific examples of other actions. The number of employees who reported physical activity levels in the “physically inactive” range decreased by 8% at follow-up. Of participants in the June 2009 screening, 80% agreed with the statement “my agency supports maintaining my health” and 95% agreed with the statement “the agency should continue developing wellness programs.”

Health-Related Work Performance

To measure health-related work performance, the Work Limitations Questionnaire (WLQ) was used in the Washington Healthy Worksite Initiative. The WLQ indicates the degree to which health problems interfere with specific aspects of job performance (called “presenteeism”). Responses to the questions are combined into four areas of potential work limitation. Among employees who participated in the screenings in June 2008 and June 2009, the WLQ’s overall Productivity Loss Score was 2.8% at baseline and 2.3% at follow-up; this was a reduction in presenteeism of 0.5 percentage point, or 18%, and reflected changes in all four areas of work limitation (time demands, physical demands, mental-interpersonal demands and output), as pictured in Figure 8 (Work Limitations Questionnaire Results).

Figure 9 (WLQ Results CTLL vs. Non-CTLL) illustrates that the employee group participating in CTLL (Changes That Last A Lifetime) showed a 24% improvement in the overall WLQ Productivity Loss

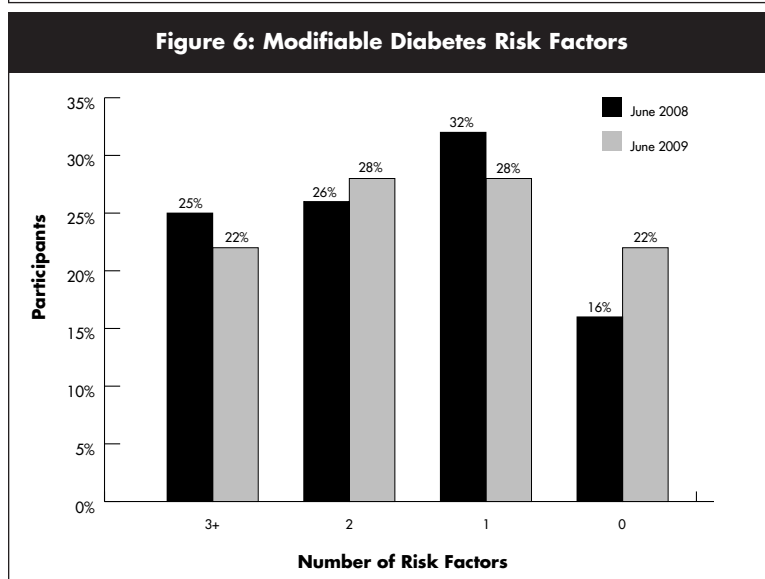
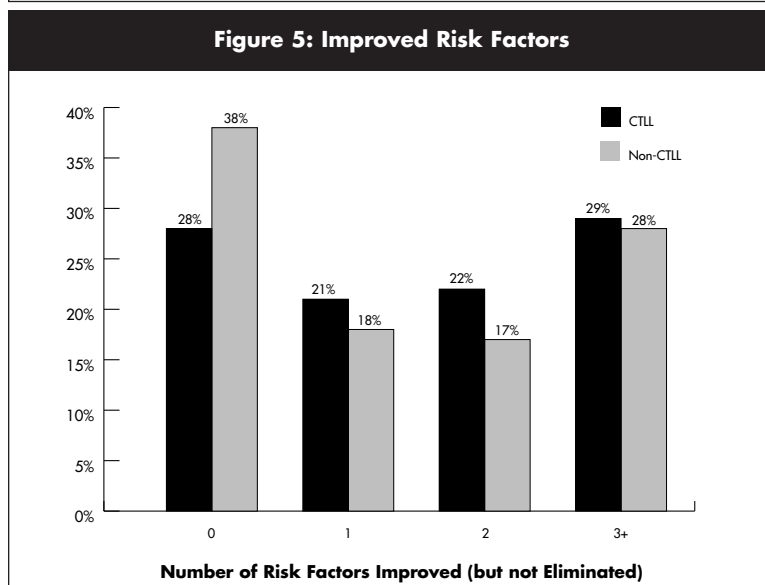
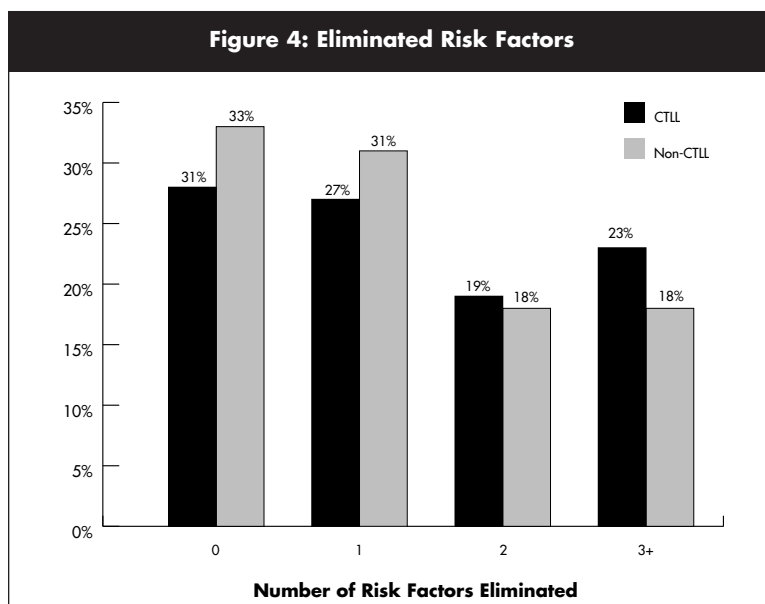


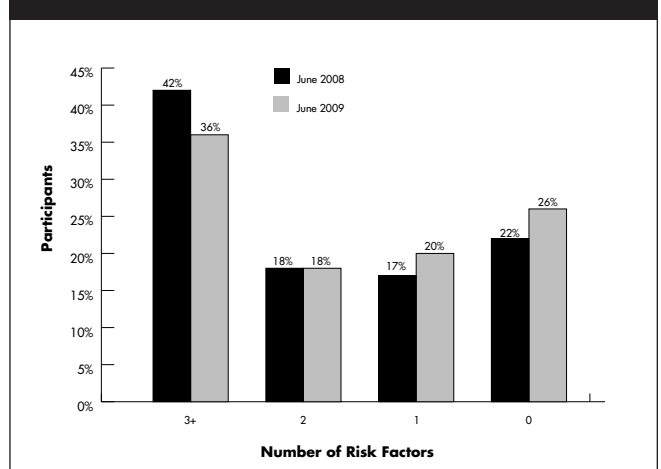
Table 6. Actions Taken by Employees

Action Taken	# of Participants
No Previous Survey/Screening	23%
No Action Taken	13%
Saw Primary Care Doctor	26%
Changed Diet	42%
Increased Physical Activity	40%
Began Taking Medications	5%
Changed Medications	3%
Other	10%

score, compared with just a 5% improvement for those who did not participate in CTLL. Figure 9 - WLQ Results CTLL vs. Non-CTLL

The operational definition of productivity varies with the industry. Increased workplace performance or improved productivity can be “dollarized” using the hourly wage or salary applied to an equivalent “time loss” from the percentage of reduced functionality at work to determine the dollar savings per individual employee – using the differences between the pre- and post-intervention WLQ summary scores. This would represent increased productivity over the same pay period or amount of pay. This approach does not take into account reductions in healthcare costs that can result from improve-

Figure 7: Lipid Risk Factors
Cholesterol (Total Cholesterol, HDL, LDL and Triglycerides)



ments in health that also were the basis of the improvement in work place performance.

An un-measurable outcome from interventions that can improve workplace performance is the increase in mental and physical energy reported by participants who follow the recommendations of the intervention. These changes in energy begin in the first two weeks and are readily recognized by the participant on and off work.

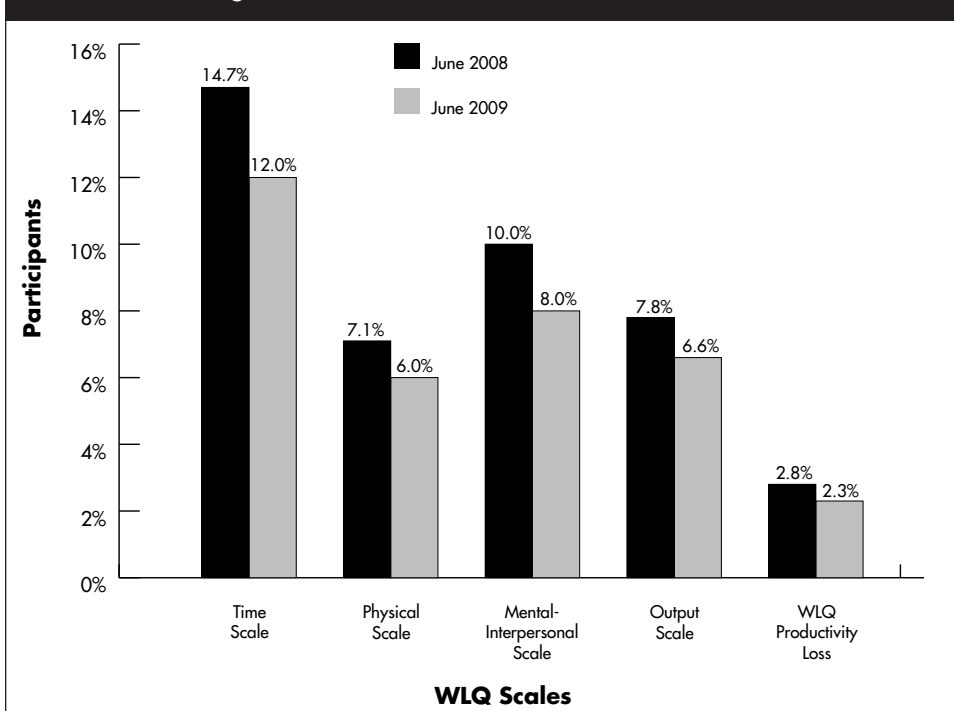
DISCUSSION

The main objective of this initiative was to define and implement organizational change in participating state agencies to create a healthy work culture evidenced by improvements in work force health and productivity. The Healthy Worksite Initiative (HWI) with its Change Package proved successful in determining the infrastructure and processes needed in an agency to improve work force health and performance.

Participating agency team members provided feedback and recommendations for each of the Change Concepts, the Collaborative learning approach, and the overall project.

There were no recommendations to revise any of the seven Change Concepts. Most agreed that this strategic approach was valuable and that the Collaborative learning model worked well. Team members had many recommendations for improving the spread of the Change Package to other agencies.

Figure 8: Work Limitations Questionnaire Results



A common theme among senior leaders was the catalyzing force of HWI. The group reported that sharing the workforce biometric screening data with senior leaders significantly increased the leaders' awareness of the importance of worksite health and productivity management programs. The workforce health data measurements produced from WHI sharpened the focus of the agencies on supporting employee health.

Senior leaders reported that HWI was a positive experience for their agencies. All used the initiative as a management tool to maintain a productive workforce.

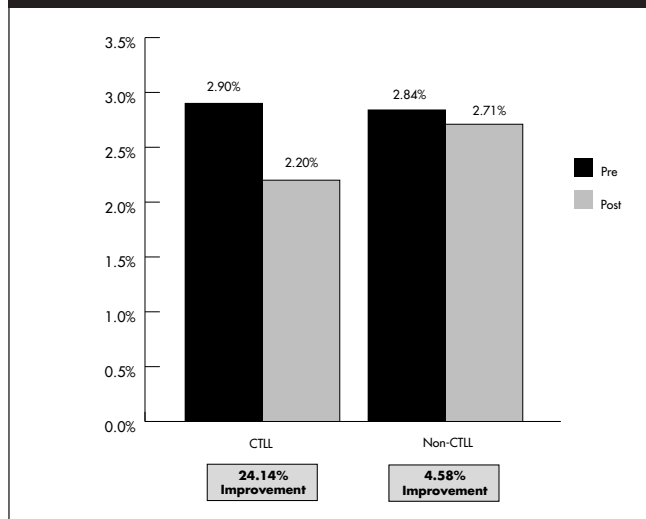
"HWI provided actions to address performance in ways that were caring; it provided a way (or space) to have the discussion about performance," stated by Karen Lee, Commissioner, Washington State Employment Security Department.

Each agency in the HWI was considered to be a "separate company" with its own work environment, culture of health, style of communications and organizational challenges. Each agency was responsible for its own changes and interventions in the HWI, so the models and components varied among the agencies. Providing a high-level change model versus a prescriptive one-size-fits-all model allows for local capacity building and leverages the human potential within each agency to achieve results in a way that works best for them. This approach sets a tone of respect – the sponsors trust that each agency team knows or can find the best way to make changes to achieve results. Agency teams and senior leaders learned the value of workforce health data from their employees and how to use that data to guide actions that were efficient and effective. Some agencies sponsored "Lunch and Learns" for managing high blood pressure, for example, to provide concrete support for improving employee health. Other agencies promoted visits to local farmers' markets to purchase healthy foods, and two agencies linked up with the local health department to assess their worksite environments. The most successful agencies integrated health and productivity management into their current management strategies as well as the organization's strategic plan.

For Washington Wellness, the Healthy Worksite Initiative's integrated workforce data were an important first step in demonstrating the value of a population-based approach to health and healthcare, to the agencies and to its own leadership. In a re-organization by Washington Wellness' sponsoring agency, the Health Care Authority, Washington Wellness was placed in the division that contracts for employee and retiree benefits. This positioning should provide a more coordinated and comprehensive approach to employee health and healthcare. The HWI helped demonstrate the power of individual agencies as players in supporting and improving their own employees' health.

This initiative did have its limitations. The HWI was unable to find a validated tool to measure the "culture of health" at baseline. They also were unable to obtain absenteeism data due to a complicated state tracking system. Both of these measures would have provided more data to assess the value of the approach. Another limitation was lack of sponsoring staff time

Figure 9: WLQ Results (CTLL vs. Non-CTLL)



to communicate with the local primary care providers regarding the onsite biometric screenings. Plans were made for this aspect of the project, but not implemented. Participants were encouraged to review their risk profiles and interventions to reduce risks with their physicians. The individual's Personal Health Report was printable from the project dedicated web site to facilitate communication between the participants and their physicians. The local medical community was not notified about the project unless their patient was a participant who asked their physician to review the reports.

CONCLUSIONS

The HWI provided valuable insights into the role of the agency in employee health, the power of integrating health survey results with biometric data, and the health risks present in a sample of the state employee population. The HWI Change Package was applicable to agencies of varying sizes, geographic locations, job categories, and missions. To spread the implementation of the Change Package to state organizations who may not be early adopters, representative stakeholders were invited to develop "just right" criteria for each of the Change Concepts.

As a result of the HWI outcomes, the project has been funded by the Legislature for an additional two years. All state organizations have been invited to meet the criteria to achieve a designated status with a title of Washington Wellness Worksite. The criteria will become the measurement standard and a training focus for all the agencies and institutions of higher education within the state system.

Learnings from the Healthy Worksite Initiative and from Washington Wellness Worksite projects will be incorporated into the value-based process as the State continues to evolve the relationship between its agencies as employers and their employees regarding health and healthcare. **JHP**

For references, please visit www.ihpm.org/jhp