

University of Massachusetts Medical School

eScholarship@UMMS

Community Engagement and Research
Symposia

2017 Community Engagement and Research
Symposium

Mar 3rd, 8:00 AM

A Preliminary Method for Estimating Program-related Reduction in Employee Health Care Expenditures for the Massachusetts Working on Wellness (WoW) Program

Wen-Chieh Lin
University of Massachusetts Medical School

Et al.

Let us know how access to this document benefits you.

Follow this and additional works at: https://escholarship.umassmed.edu/chr_symposium



Part of the [Civic and Community Engagement Commons](#), [Community-Based Research Commons](#), [Community Health and Preventive Medicine Commons](#), [Health Economics Commons](#), and the [Translational Medical Research Commons](#)

Repository Citation

Lin W, Massachusetts Working on Wellness Evaluation Team. (2017). A Preliminary Method for Estimating Program-related Reduction in Employee Health Care Expenditures for the Massachusetts Working on Wellness (WoW) Program. Community Engagement and Research Symposia. <https://doi.org/10.13028/g94z-x202>. Retrieved from https://escholarship.umassmed.edu/chr_symposium/2017/posters/21

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 License](#). This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in Community Engagement and Research Symposia by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.

Introduction

- The WoW program is designed to improve employee health outcomes through workplace support of healthy behaviors
- Healthy behaviors are expected to achieve health care cost savings through:
 - Cost reduction:** improving health by changing unhealthy behaviors to reduce health care services
 - Cost avoidance:** maintaining healthy people at the same level without incurring new medical expenses
- Most of the literature addressing cost savings has not differentiated these two components. The quantified savings are typically represented as cost reduction.
- This approach was developed to estimate potential health care expenditure reduction for the WoW program based on
 - Employee characteristics at baseline
 - Employer plans for new activities and policies
 - Evidence in the scientific literature on expected program benefits

Methods

- Collect baseline data from participating organizations and their employees
- Categorize intervention activities planned by employers
- Review scientific literature for documented effects from similar worksite interventions and summarize
- Factors for estimating potential health care expenditure reduction:
 - Number of organizations targeting the specific area
 - Number of employees in the study
 - Prevalence of specific risk factors for employees
 - Ranges of success in risk mitigation
 - Program-associated decrease in health care expenditures
- Estimate potential return on investment considering:
 - Health care expenditure reduction
 - Reported program investment amount

Results

Selected Literature Review for Healthy Eating

Intervention Activities (#)	Examples of Published Literature	Changes in Behaviors and Health Condition Prevalence
Information only N=21	Geaney [2016]: One study arm = nutrition education only	7-9 months follow-up: -0.7% in mean BMI, -5.9% in systolic BP, and -4.1% in diastolic BP
Financial access/support N=6	French [2003]: Prices lowered by 50%	+93% purchases of lower-fat snacks; increased intake of fresh fruit (4-fold) and baby carrots (2-fold).
Financial incentives, staff competitions N=10	Racette [2009]: on-site Weight Watchers program, team competitions, rewards, incentives (& other components)	Change at 12 months: +30% fruit/vegetable intake +25% of participants in lowest risk group
Multi-component programs (at least 2 activities above)	Bandoni [2010]: menu planning, food presentation, motivational strategies	Increased intake of fruits and vegetables after 6 months: +17.3% crude estimate, +11.2% adjusted

- An improvement of as much as 30% of baseline value is plausible from a well-conducted intervention
- We assume that a 5% change in a measured outcome, e.g., change in behaviors, is roughly equivalent to 5% of the population changing risk category

Selected Potential Cost Reduction Estimations

# of Employees (N=74,000)	Annual Cost Reduction (\$150 per risk decreased)		
	Success Rate (%)	Employees to Benefit (N)	Cost Reduction (\$)
Health Eating	5%	2,081	\$312,132
-Employees not eating sufficient fruits/vegetables (76%)	10%	4,162	\$624,264
-Employers including this target in their Action Plans (74%)	20%	8,324	\$1,248,528
	30%	12,485	\$1,872,792
Exercise (I)	5%	800	\$119,991
-Employees not getting sufficient exercise (23%)	10%	1,600	\$239,982
-Employers including this target in their Action Plans (94%)	20%	3,200	\$479,964
	30%	4,800	\$719,946
Exercise (II)	5%	1,739	\$260,850
-Employees overweight or obese (50%)	10%	3,478	\$521,700
-Employers including this target in their Action Plans (94%)	20%	5,217	\$782,550
	30%	6,956	\$1,043,400
Stress Reduction	5%	478	\$71,706
-Employees' stress interfering with health (19%)	10%	956	\$143,412
-Employers including this target in their Action Plans (68%)	20%	1,912	\$286,824
	30%	2,868	\$430,236

Results

Estimated Cost Savings

- Cost reduction: \$0.76 million to \$4.07 million with these assumptions:
 - Risk mitigation success rates from 5% to 30% are plausible for each target area: healthy eating, leisure-time exercise and stress reduction
 - \$150 saved per risk decrease per person

Estimated Return on Investment

- Return on investment: \$0.38 to \$2.04 reduction in health care expenditures for every \$1 invested by the WoW program
 - Based on \$2 million WoW investment (June 2015-Dec 2016)
 - Employers' monetized costs not available

Discussion and Conclusions

- Cost reduction varies among risk factors because of their baseline prevalence
- Current estimation focuses solely on cost reduction from improving unhealthy behaviors of employees
- The magnitude of cost saving could be greater if savings from other areas are also considered, including:
 - Cost avoidance by maintaining healthy people from engaging in new unhealthy behaviors
 - Preventing chronic disease complications
 - Synergistic effects when targeting multiple areas
 - Increased productivity and reduced absenteeism
- Higher return on investment is possible with further WoW program expansion since upfront costs for program development and data processes are likely non-recurrent or very low in the future

Acknowledgements

Evaluation Team members: Laura Punnett, ScD, Wen-Chieh Lin, PhD, Wenjun Li, PhD, Suzanne Nobrega, MS, Kevin Kane, MS, Laura Sefton, MPP, Robin Toof, EdD, Melissa Wall, MA