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

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## 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 -Employees not eating sufficient fruits/vegetables (76%) -Employers including this target in their Action Plans (74%)	5%	2,081	\$312,132
	10%	4,162	\$624,264
	20%	8,324	\$1,248,528
Exercise (I) -Employees not getting sufficient exercise (23%) -Employers including this target in their Action Plans (94%)	5%	800	\$119,991
	10%	1,600	\$239,982
	20%	3,200	\$479,964
Exercise (II) -Employees overweight or obese (50%) -Employers including this target in their Action Plans (94%)	5%	1,739	\$260,850
	10%	3,478	\$521,700
	20%	5,217	\$782,550
Stress Reduction -Employees' stress interfering with health (19%) -Employers including this target in their Action Plans (68%)	5%	478	\$71,706
	10%	956	\$143,412
	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

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