



# The ROI of Employee Health Promotion

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Vice President at Truven Health Analytics

Monday, February 17, 2013

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# CHALLENGES TO WORKPLACE WELLNESS PROGRAMS

The screenshot shows a Microsoft Internet Explorer browser window. The address bar contains the URL: <http://healthaffairs.org/blog/2013/01/16/is-it-time-to-re-examine-workplace-wellness-get-well-quick-schemes/>. The search bar shows the query "health affairs al lewis". The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The page title is "Is It Time To Re-Examine Workplace Wellness 'Get Well Quick' Schemes?".

The website header features the text "AT THE INTERSECTION OF HEALTH, HEALTH CARE, AND POLICY" and a search bar with a "SEARCH" button and "Advanced Search" link. The main title is "HealthAffairs Blog" with "Blog" in red. Social media icons for RSS, Twitter, Facebook, and LinkedIn are present, along with a "FOLLOW US" label.

The navigation menu includes: HOME | ABOUT | ARCHIVE | TOPICS | THEME ISSUES | BRIEFS | BLOGS | SUBSCRIBE | ALERTS | MY ACCOUNT. A secondary red navigation bar contains: HA BLOG ARCHIVES | CATEGORIES | AUTHORS | BLOGROLL | ABOUT THE BLOG | TERMS OF USE.

The main content area displays the article title "Is It Time To Re-Examine Workplace Wellness 'Get Well Quick' Schemes?" with a blue underline. The date "January 16th, 2013" is shown above two author portraits. The authors are identified as "by [Al Lewis](#) and [Vik Khanna](#)". Social sharing buttons for "Tweet" (108) and "Recommend" (48) are visible.

On the right sidebar, there is an "RSS" button, a link for "Authors: Click here to submit a post.", a link to "Visit HealthAffairs GrantWatch Blog", and a "Search Blog" section with a search input field and a "Go" button. Below this is a blue banner for "AHIP Connections, Convergence, and Collaboration Throughout the Health Care System" with the text "INSTITUTE 2013".

The Windows taskbar at the bottom shows various application icons and system tray information including "Internet | Protected Mode: On", "100%", and the date/time "8:14 AM 3/20/2013".

# Ron Goetzel Response

Ron Goetzel - Health Affairs Blog - Windows Internet Explorer provided by Truven Health Analytics

http://healthaffairs.org/blog/author/rongoetzel/

health affairs goetzel blog

Posted in [All Categories](#), [Consumers](#), [Employer-sponsored insurance](#), [Health Care Costs](#), [Nonmedical Determinants](#), [Policy](#), [Prevention](#) | [1 Comment](#) »

## On Workplace Wellness, Don't Throw The Baby Out With The Bath Water: A Reply To Lewis And Khanna

January 29th, 2013



by **Ron Goetzel**

[Tweet](#) 35 [Recommend](#) 20

This commentary is in response to a January 16, 2013 *Health Affairs* Blog post entitled "[Is It Time to Re-Examine Workplace Wellness 'Get Well Quick' Schemes?](#)" by Al Lewis and Vik Khanna. After the initial blog appeared, my email box was filled with messages asking for a rebuttal to the initial posting, which, to many, seemed like a condemnation of the worksite health promotion (wellness) field and its lack of credibility and honesty in reporting program savings. Instead of just immediately posting a response, I called Al Lewis to discuss the value of worksite health promotion in order to "set the record straight." It turns out that we agree on many issues but there are also differences.

We agree that there are unscrupulous wellness vendors who claim very large and often implausible savings from worksite health promotion programs. The return-on-investment (ROI) figures bantered about, sometimes as high as 10:1, are not credible. At the same time, I believe it would be wrong to "throw out the baby with the bath water." In this case, the "baby" refers to well-designed, evidence-based, comprehensive, appropriately resourced, non-gimmick, and well-executed worksite health promotion programs.

Stated positively, good worksite programs deserve credit and should be supported by the business community,

### Tweets

**HA** Health\_Aff @Health\_A  
Implementing Hea  
Circuit Rejects Lib  
ACA Challenge Ac  
Blog  
[healthaffairs.org/b](#)

**HA** Health\_Aff @Health\_A  
GrantWatch Blog:  
Immigrants: What  
Foundations Fund  
[healthaffairs.org/b](#)  
Expand

**HA** Health\_Aff @Health\_A  
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**B**

- A Healthy Blog
- American Journal of

Internet | Protected Mode: On 150% 1:55 PM 7/12/2013

# Wall Street Journal Op-Ed

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**THE WALL STREET JOURNAL.**  
WSJ.com

OPINION | June 20, 2013, 7:14 p.m. ET

## Here Comes ObamaCare's 'Workplace Wellness'

*It's a \$6 billion industry, but signs of effectiveness are scarce. Companies nonetheless are being urged to sign up.*

BY AL LEWIS AND VIK KHANNA

During the congressional debate over ObamaCare, few provisions stirred less controversy than an amendment providing incentives for companies to encourage their workers to stay healthy. It's a turbocharged version of "workplace wellness" programs: If employees fall short of their targets—on blood pressure or weight, for example—employers are allowed to make them contribute more to their health insurance. The idea is to rein in medical costs by reducing worker illness.

There's only one problem: Workplace wellness programs don't work. Such programs, which have been around for more than two decades, are ineffective at reducing costs, lack support in medical literature, are ...

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7/4/2013

# Rand Report

## Workplace Wellness Programs Study

### Final Report

Soeren Mattke, Hangsheng Liu, John P. Caloyeras, Christina Y. Huang,  
Kristin R. Van Busum, Dmitry Khodyakov, Victoria Shier

RAND Health

Sponsored by the U.S. Department of Labor and the U.S. Department of Health and Human Services



# Findings of the Rand Report

## **Program Impact on Health-Related Behaviors and Health Status**

In an analysis of the CCA database, when comparing wellness program participants to statistically matched nonparticipants, we find statistically significant and clinically meaningful improvements in exercise frequency, smoking behavior, and weight control, but not cholesterol control. Those improvements are sustainable over an observation period of four years, and our simulation analyses point to cumulative effects with ongoing program participation. However, we caution that our analyses cannot account for unobservable differences between program participants and nonparticipants, such as differential motivation to change behavior.

# Findings of the Rand Report

## **Health Care Cost and Utilization**

In the RAND Employer Survey, employers overwhelmingly expressed confidence that workplace wellness programs reduce medical cost, absenteeism, and health-related productivity losses. But at the same time, only about half stated that they have evaluated program impacts formally and only 2 percent reported actual savings estimates. Similarly, none of our five case study employers had conducted a formal evaluation of their programs on cost; only one employer had requested an assessment of cost trends from its health plan. Our statistical analyses suggest that participation in a wellness program over five years is associated with a trend toward lower health care costs and decreasing health care use. We estimate the average annual difference to be \$157, but the change is not statistically significant (Figure S.5).<sup>1</sup>

# Media Reports

The screenshot shows a Windows Internet Explorer browser window. The address bar displays the URL <http://www.downeyobesityreport.com/2013/05/>. The page title is "May » 2013 » The Downey Obesity Report - Windows Internet Explorer provided by Truven Health Analytics". The article title is "Secret RAND Report Trashes Employer 'Wellness' Programs" and the date is "May 25th, 2013". The article text reads: "A Reuters story by Sharon Begley discloses a report from RAND Corp. provided to the US Departments of Labor and Health and Human Services . The study finds only a modest benefit in wellness programs. It states, "According to a report by researchers at the RAND Corp, programs that try to get employees to become healthier and reduce medical costs have only a modest effect. Those findings run contrary to claims by the mostly small firms that sell workplace wellness to companies ranging from corporate titans to mom-and-pop operations. RAND delivered the congressionally mandated analysis to the U.S. Department of Labor and the Department of Health and Human Services last fall. The report found, for instance, that people who participate in such programs lose an average of only one pound a year for three years."

May » 2013 » The Downey Obesity Report - Windows Internet Explorer provided by Truven Health Analytics

<http://www.downeyobesityreport.com/2013/05/>

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Linda Newman-Goet...

Goetzl, Ron - Outlook We... May » 2013 » The Dow...

## Secret RAND Report Trashes Employer 'Wellness' Programs

May 25th, 2013

A Reuters story by Sharon Begley discloses a report from RAND Corp. provided to the US Departments of Labor and Health and Human Services . The study finds only a modest benefit in wellness programs.

It states, "According to a report by researchers at the RAND Corp, programs that try to get employees to become healthier and reduce medical costs have only a modest effect. Those findings run contrary to claims by the mostly small firms that sell workplace wellness to companies ranging from corporate titans to mom-and-pop operations.

RAND delivered the congressionally mandated analysis to the U.S. Department of Labor and the Department of Health and Human Services last fall.

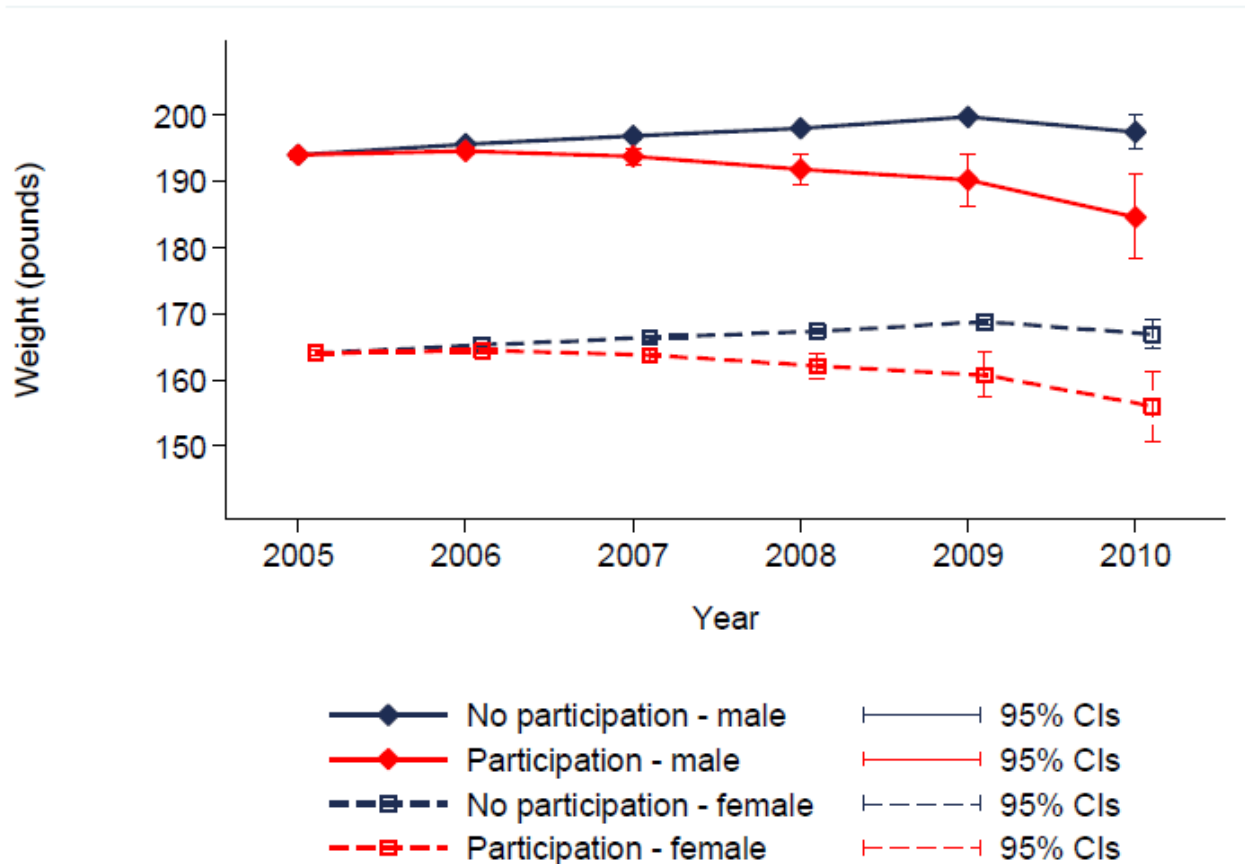
The report found, for instance, that people who participate in such programs lose an average of only one pound a year for three years.

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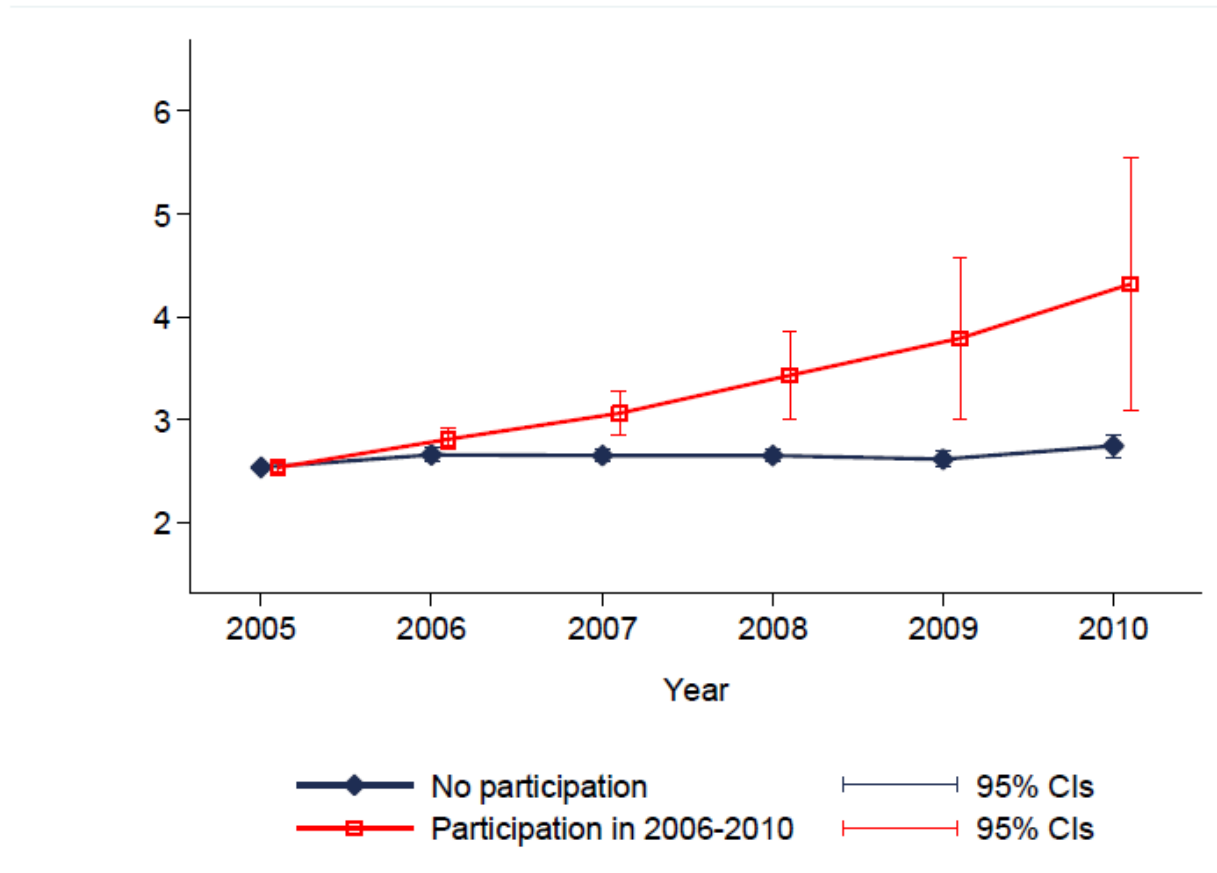
# Weight Results

Figure 4.16: Cumulative Simulated Effects of Participation in a Weight Control Program on Body Weight over Five Years



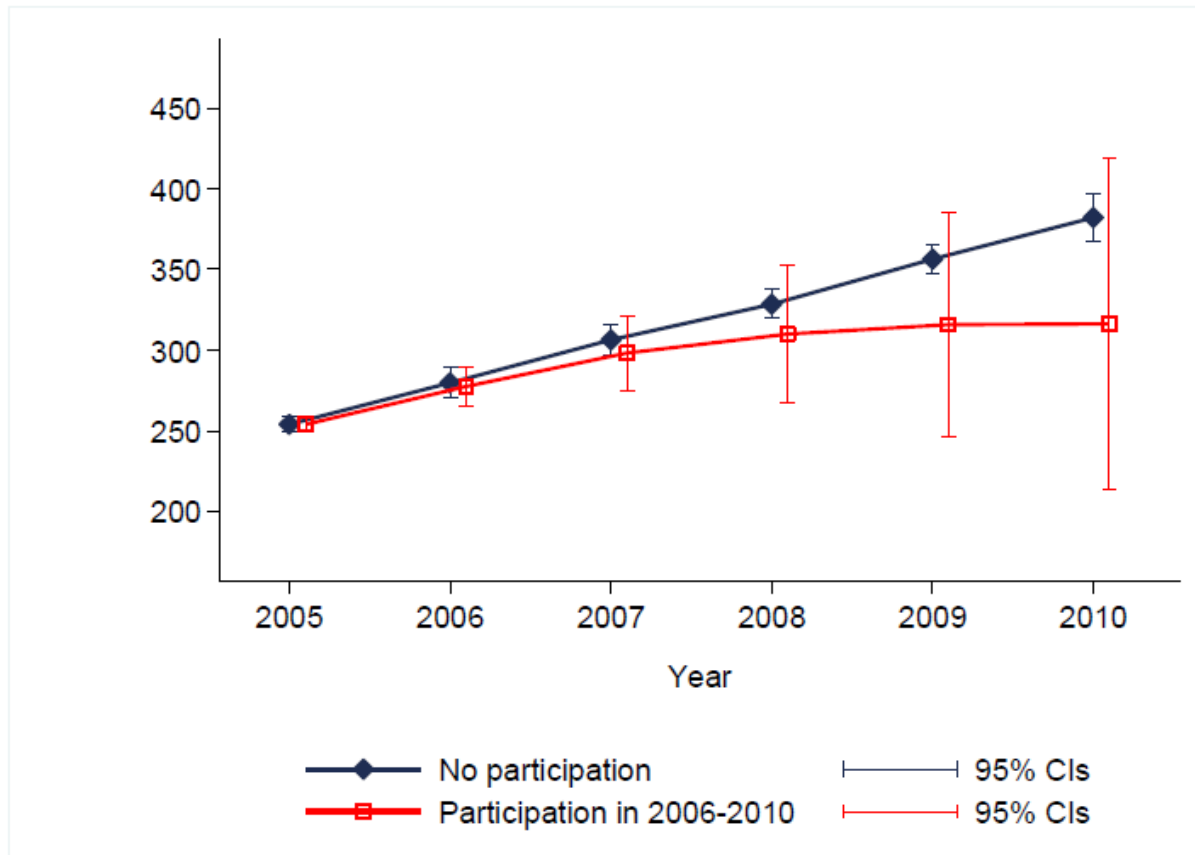
# Exercise Results - 2.5 vs. 4 days

Figure 4.11: Cumulative Simulated Effects of Exercise Program Participation on Exercise Frequency



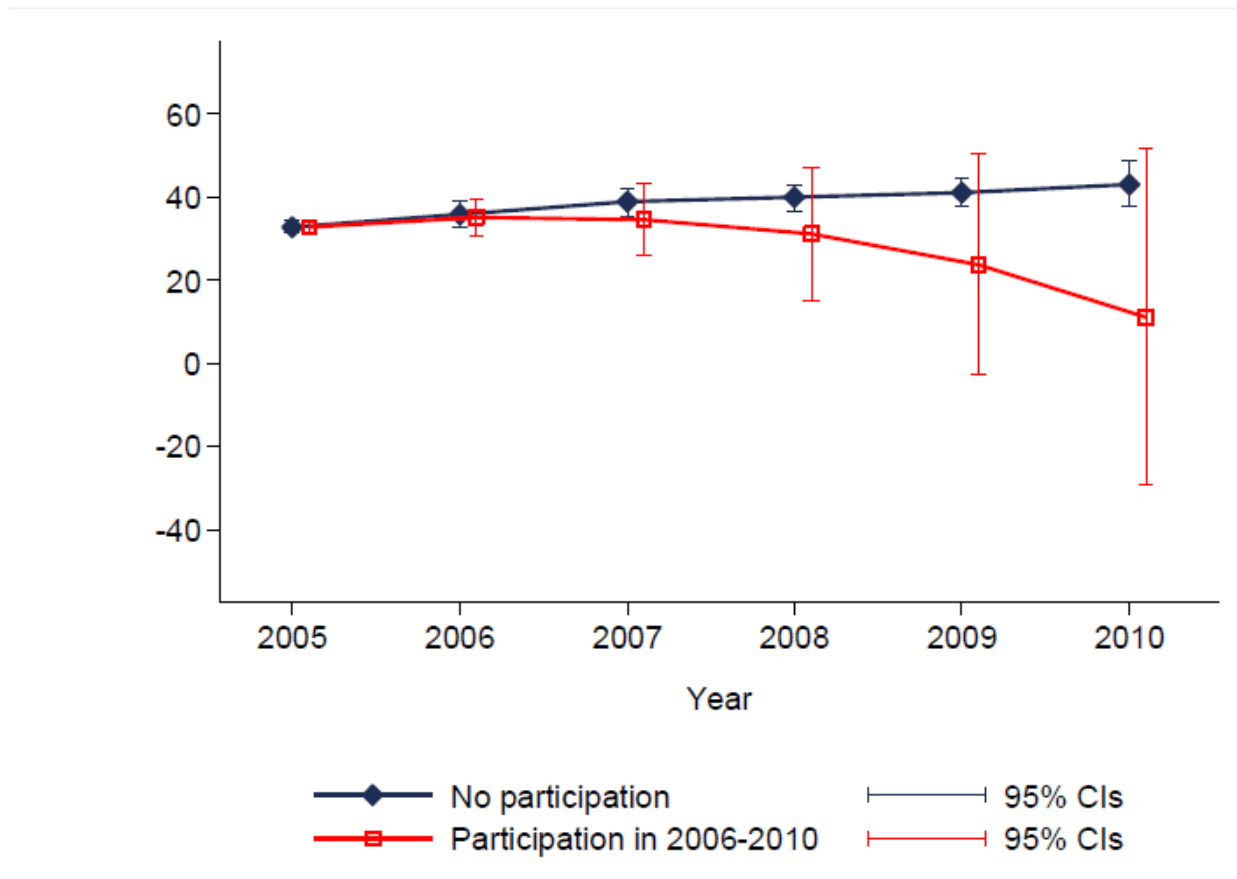
# Health Care Costs -- \$300 vs. \$350 PMPM (N=12,127)

Figure 4.24: Cumulative Simulated Effect of Wellness Program Participation on Total Health Care Costs per Health Plan Member per Month



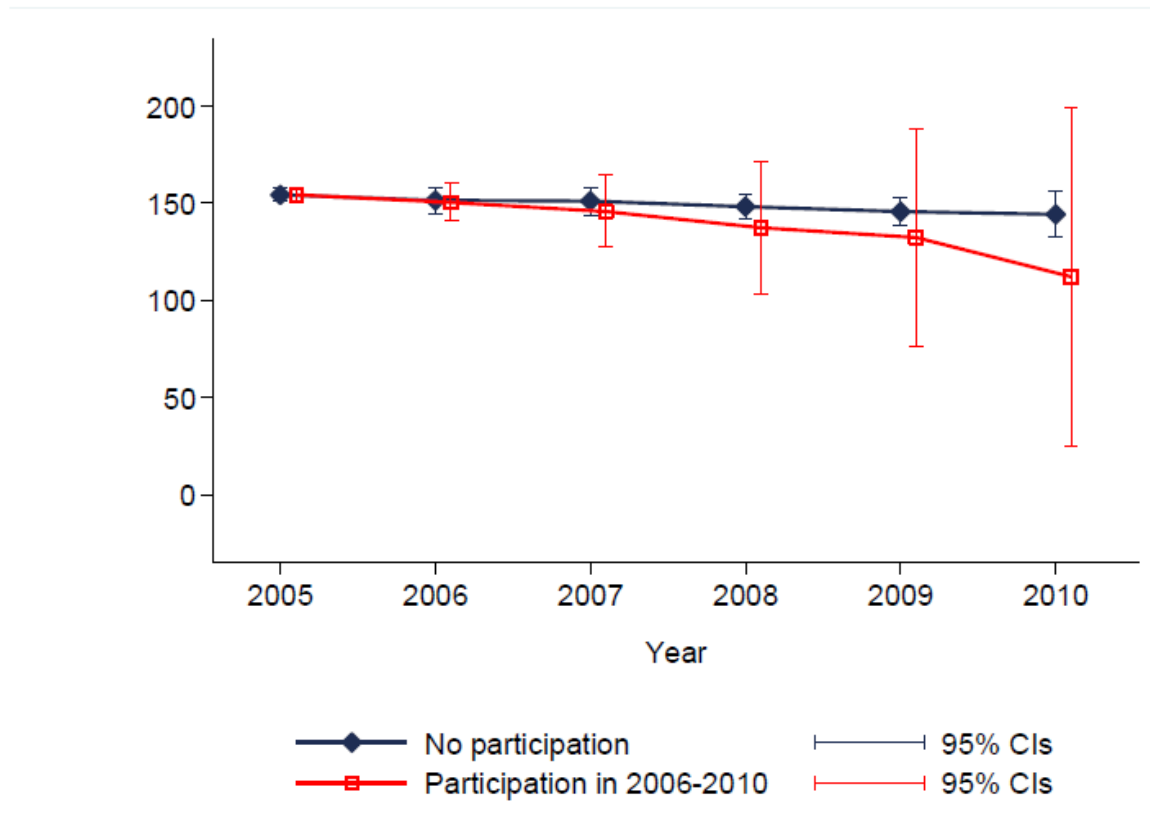
# Inpatient Admissions

Figure 4.26: Cumulative Simulated Effects of Wellness Program Participation on Inpatient Admissions



# ER Visits

Figure 4.27: Cumulative Simulated Effects of Wellness Program Participation on Emergency Department Visits



# PepsiCo Study

By John P. Caloyeras, Hangsheng Liu, Ellen Exum, Megan Broderick, and Soeren Mattke

DOI: 10.1377/hlthaff.2013.0625  
HEALTH AFFAIRS 33,  
NO. 1 (2014): 124–131  
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The People-to-People Health  
Foundation, Inc.

## Managing Manifest Diseases, But Not Health Risks, Saved PepsiCo Money Over Seven Years

**John P. Caloyeras** is a doctoral fellow at the Pardee RAND Graduate School and an assistant policy analyst at the RAND Corporation in Santa Monica, California.

**Hangsheng Liu** is a policy researcher at the RAND Corporation in Boston, Massachusetts.

**Ellen Exum** is the director of global wellness at PepsiCo, in Purchase, New York.

**Megan Broderick** is the senior director of health and welfare benefits at PepsiCo, in Purchase, New York.

**Soeren Mattke** (mattke@rand.org) is a senior scientist at the RAND Corporation and the managing director of RAND Health Advisory Services, RAND Health's consulting practice, in Boston, Massachusetts.

**ABSTRACT** Workplace wellness programs are increasingly popular. Employers expect them to improve employee health and well-being, lower medical costs, increase productivity, and reduce absenteeism. To test whether such expectations are warranted, we evaluated the cost impact of the lifestyle and disease management components of PepsiCo's wellness program, Healthy Living. We found that seven years of continuous participation in one or both components was associated with an average reduction of \$30 in health care cost per member per month. When we looked at each component individually, we found that the disease management component was associated with lower costs and that the lifestyle management component was not. We estimate disease management to reduce health care costs by \$136 per member per month, driven by a 29 percent reduction in hospital admissions. Workplace wellness programs may reduce health risks, delay or avoid the onset of chronic diseases, and lower health care costs for employees with manifest chronic disease. But employers and policy makers should not take for granted that the lifestyle management component of such programs can reduce health care costs or even lead to net savings.

## Media Report

# PepsiCo's workplace wellness program fails the bottom line: study



Mon, Jan 6 2014

By [Sharon Begley](#)

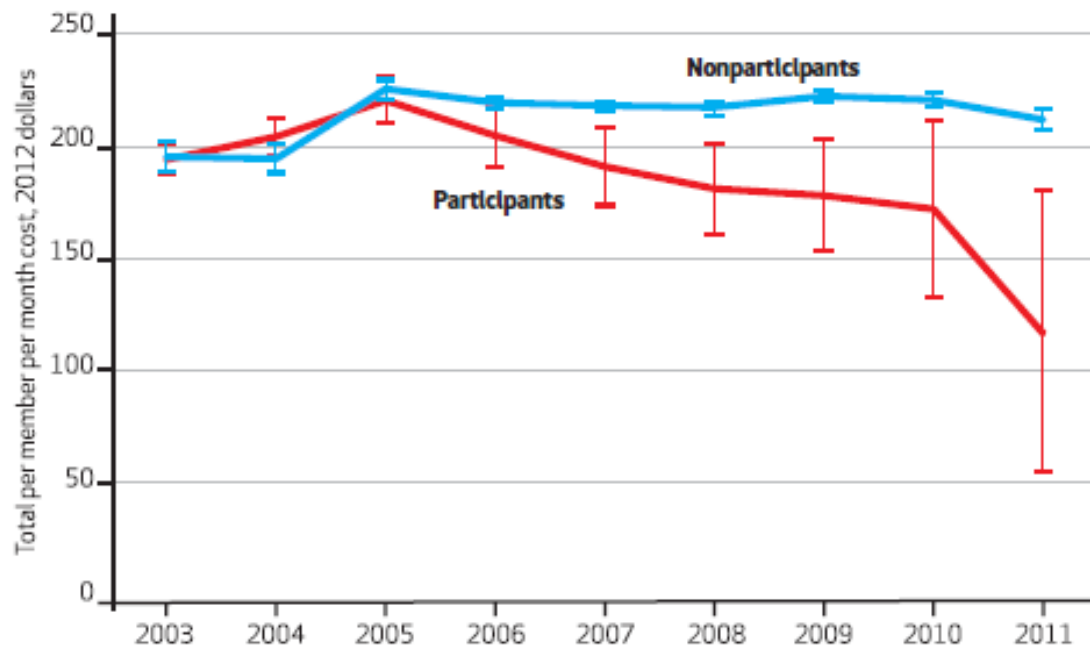
NEW YORK (Reuters) - A long-running and well-respected workplace wellness program at PepsiCo that encourages employees to adopt healthier habits has not reduced healthcare costs, according to the most comprehensive evaluation of a such a program ever published.

Released on Monday in the journal Health Affairs and based on data for thousands of PepsiCo employees over seven years, the findings "cast doubt on the widely held belief" that workplace wellness programs save employers significantly more than they cost, conclude Soeren Mattke of the RAND Corporation and his co-authors. "Blanket claims of 'wellness saves money' are not warranted."

# Results

## EXHIBIT 1

**Aggregate Impact Of Lifestyle Management And Disease Management On Per Member Per Month Health Care Costs At PepsiCo, 2004-11**



**SOURCE** Authors' analysis of PepsiCo health plan and Healthy Living program data. **NOTES** Cost estimates are adjusted by demographics, comorbidities, and calendar years based on propensity score matching and regression analyses. This exhibit assumes that members participated continuously during 2004-11; 2003 is the baseline year.



## Generic Study Limitations – Corporate Research

**Self-Selection**

**Attrition**

**Treatment Fidelity**

**Instrumentation**

**Maturation**

**History**

**Publication Bias**

# Research Methods -- Study Design 101








- Pre-experimental
- Quasi-experimental
- True experimental



Validity of results  
increases as you move  
down this list

# WHAT IS THE EVIDENCE BASE?

-  A large proportion of diseases and disorders is preventable. Modifiable health risk factors are precursors to a large number of diseases and disorders and to premature death (Healthy People 2000, 2010, Amler & Dull, 1987, Breslow, 1993, McGinnis & Foege, 1993, Mokdad et al., 2004)
-  Many modifiable health risks are associated with increased health care costs and diminished performance within a relatively short time window (Milliman & Robinson, 1987, Yen et al., 1992, Goetzel, et al., 1998 -2012, Anderson et al., 2000, Bertera, 1991, Pronk, 1999)
-  Modifiable health risks can be improved through workplace sponsored health promotion and disease prevention programs (Wilson et al., 1996, Heaney & Goetzel, 1997, Pelletier, 1991, 1993, 1996, 1999, 2001, 2005, 2009, 2011, Soler et al. 2010)
-  Improvements in the health risk profile of a population can lead to reductions in health costs (Edington et al., 2001, Goetzel et al., 1999, Carls et al., 2011))
-  Worksite health promotion and disease prevention programs save companies money in health care expenditures and produce a positive ROI (Johnson & Johnson 2002, Citibank 1999-2000, Procter and Gamble 1998, Chevron 1998, California Public Retirement System 1994, Bank of America 1993, Dupont 1990, Highmark, 2008, Johnson & Johnson, 2011)

# THE VAST MAJORITY OF CHRONIC DISEASE CAN BE PREVENTED OR BETTER MANAGED



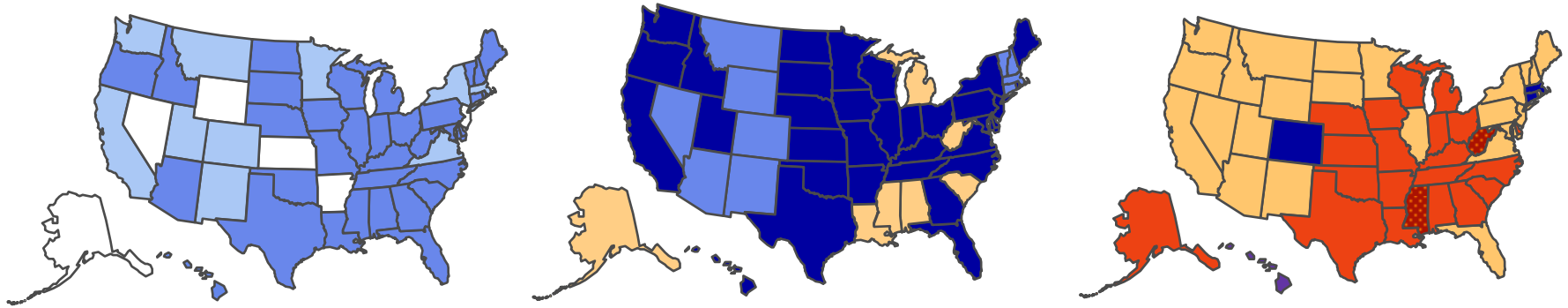
The Centers for Disease Control and Prevention (CDC) estimates...

- 80% of heart disease and stroke
- 80% of type 2 diabetes
- 40% of cancer

...could be prevented if only Americans were to do three things:

- Stop smoking
- Start eating healthy
- Get in shape

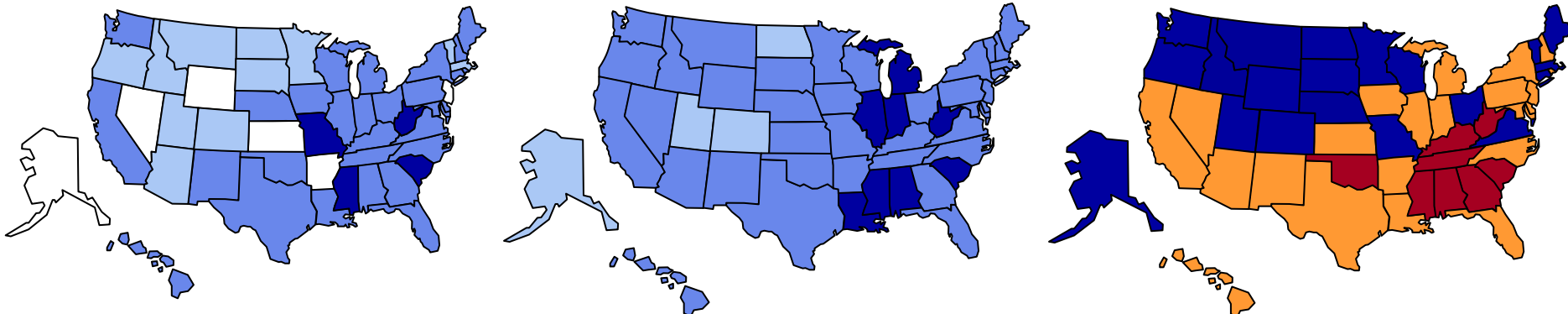
# PREVALENCE OF OBESITY



1990

1996

2006

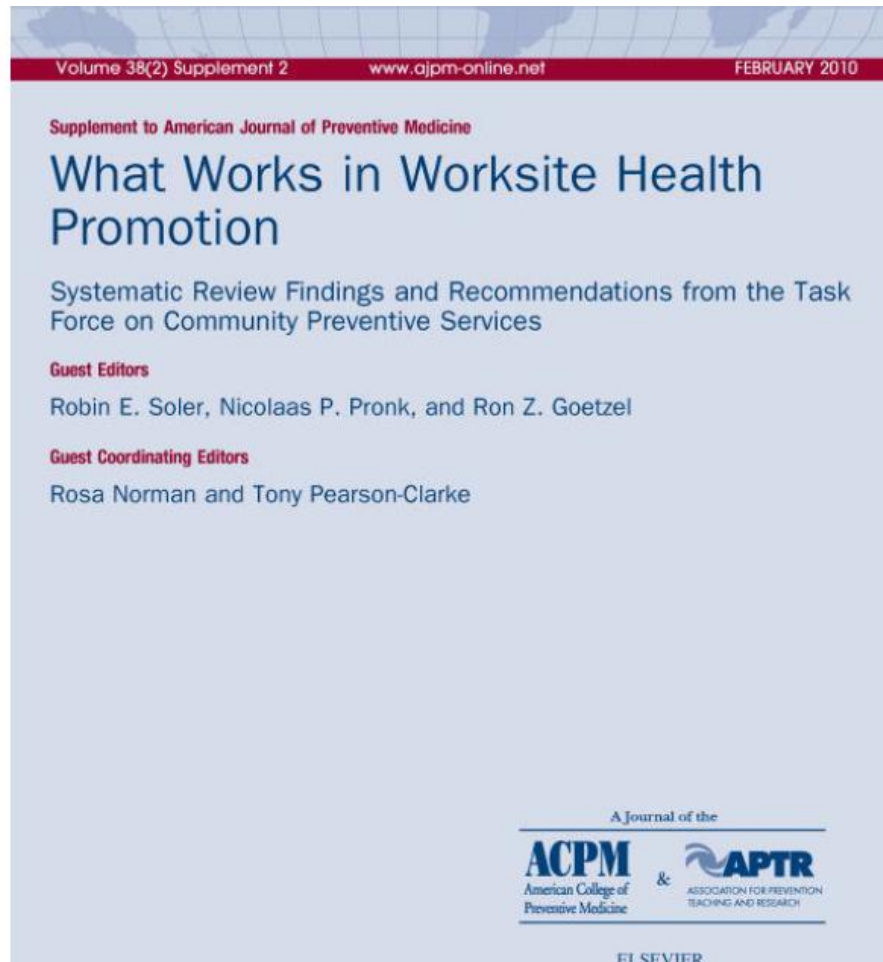


(Among US adults; BRFSS)

# PREVALENCE OF DIABETES



# SYSTEMATIC REVIEW WORKSITE HEALTH PROMOTION



# CDC COMMUNITY GUIDE TO PREVENTIVE SERVICES REVIEW – AJPM, FEBRUARY 2010

## A Systematic Review of Selected Interventions for Worksite Health Promotion

### The Assessment of Health Risks with Feedback

Robin E. Soler, PhD, Kimberly D. Leeks, PhD, MPH, Sima Razi, MPH,  
David P. Hopkins, MD, MPH, Matt Griffith, MPH, Adam Aten, MPH,  
Sajal K. Chattopadhyay, PhD, Susan C. Smith, MPA, MLIS, Nancy Habarta, MPH,  
Ron Z. Goetzel, PhD, Nicolaas P. Pronk, PhD, Dennis E. Richling, MD,  
Deborah R. Bauer, MPH, RN, CHES, Leigh Ramsey Buchanan, PhD, MPH,  
Curtis S. Florence, PhD, Lisa Koonin, MN, MPH, Debbie MacLean, BS, ATC/L,  
Abby Rosenthal, MPH, Dyann Matson Koffman, DrPH, MPH,  
James V. Grizzell, MBA, MA, CHES, Andrew M. Walker, MPH, CHES, the Task Force on  
Community Preventive Services

## SUMMARY RESULTS AND TEAM CONSENSUS

Outcome	Body of Evidence	Consistent Results	Magnitude of Effect	Finding
<b>Alcohol Use</b>	9	Yes	Variable	<b>Sufficient</b>
<b>Fruits &amp; Vegetables</b>	9	No	0.09 serving	Insufficient
<b>% Fat Intake</b>	13	Yes	-5.4%	<b>Strong</b>
<b>% Change in Those Physically Active</b>	18	Yes	+15.3 pct pt	<b>Sufficient</b>
<b>Tobacco Use</b>				<b>Strong</b>
<b>Prevalence</b>	23	Yes	-2.3 pct pt	
<b>Cessation</b>	11	Yes	+3.8 pct pt	
<b>Seat Belt Non-Use</b>	10	Yes	-27.6 pct pt	<b>Sufficient</b>



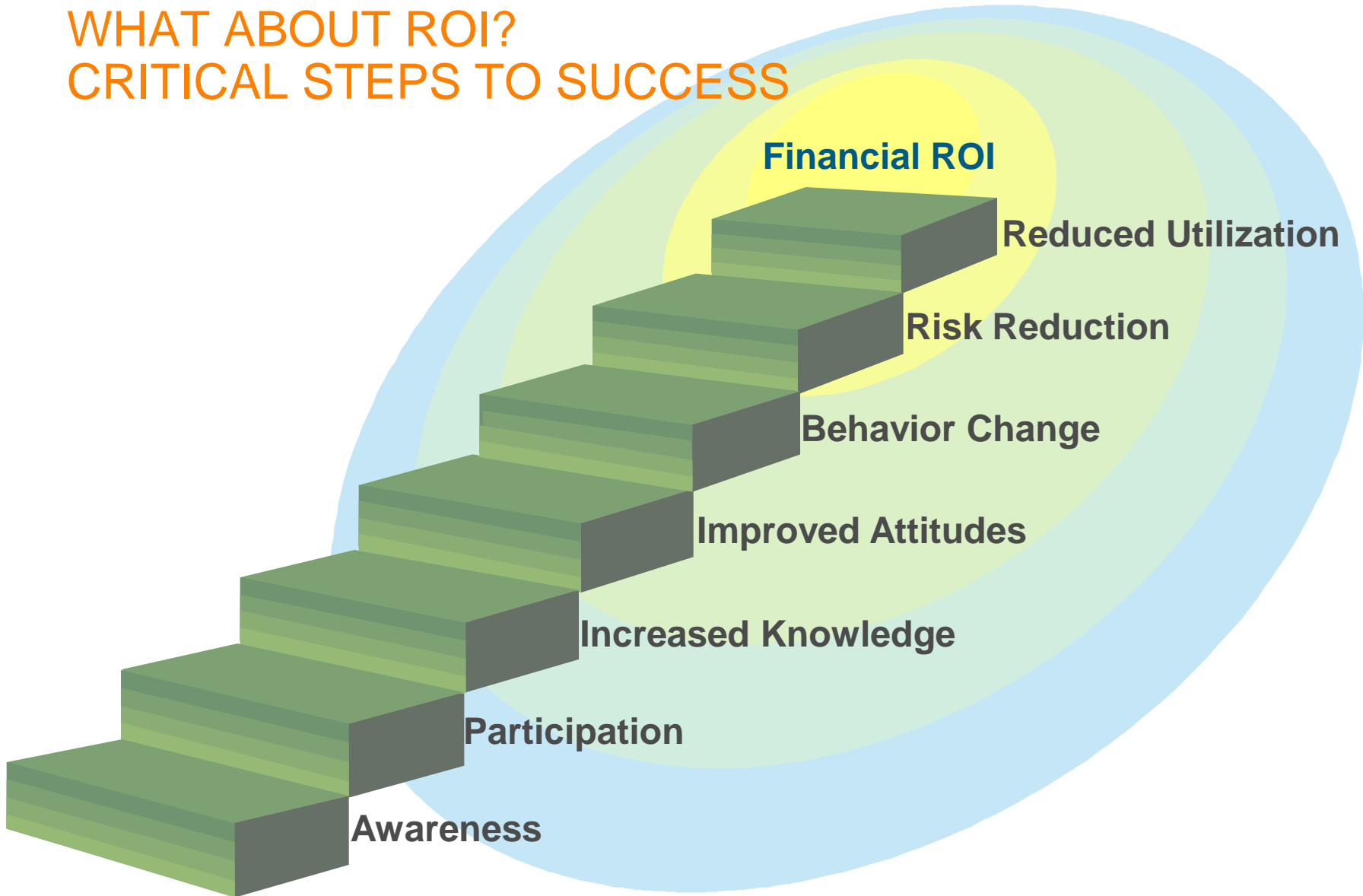
## SUMMARY RESULTS AND TEAM CONSENSUS

Outcome	Body of Evidence	Consistent Results	Magnitude of Effect	Finding
<b>Diastolic blood pressure</b>	17	Yes	Diastolic:−1.8 mm Hg	<b>Strong</b>
<b>Systolic blood pressure</b>	19	Yes	Systolic:−2.6 mm Hg	
<b>Risk prevalence</b>	12	Yes	−4.5 pct pt	
<b>BMI</b>	6	Yes	−0.5 pt BMI	Insufficient
<b>Weight</b>	12	No	−0.56 pounds	
<b>% body fat</b>	5	Yes	−2.2% body fat	
<b>Risk prevalence</b>	5	No	−2.2% at risk	
<b>Total Cholesterol</b>	19	Yes	−4.8 mg/dL (total)	<b>Strong</b>
<b>HDL Cholesterol</b>	8	No	+.94 mg/dL	
<b>Risk prevalence</b>	11	Yes	−6.6 pct pt	
<b>Fitness</b>	5	Yes	Small	Insufficient

# SUMMARY RESULTS AND TEAM CONSENSUS

<b>Outcome</b>	<b>Body of Evidence</b>	<b>Consistent Results</b>	<b>Magnitude of Effect</b>	<b>Finding</b>
<b>Estimated Risk</b>	15	Yes	Moderate	<b>Sufficient</b>
<b>Healthcare Use</b>	6	Yes	Moderate	<b>Sufficient</b>
<b>Worker Productivity</b>	10	Yes	Moderate	<b>Strong</b>

# WHAT ABOUT ROI? CRITICAL STEPS TO SUCCESS



# HEALTH AFFAIRS ROI LITERATURE REVIEW

Baicker K, Cutler D, Song Z. Workplace Wellness Programs Can Generate Savings. Health Aff (Millwood). 2010; 29(2). Published online 14 January 2010.

PREVENTION

By Katherine Baicker, David Cutler, and Zirui Song

## Workplace Wellness Programs Can Generate Savings

doi: 10.1377/hlthaff.2009.0626  
HEALTH AFFAIRS 29,  
NO. 2 (2010): –  
©2010 Project HOPE—  
The People-to-People Health  
Foundation, Inc.

**ABSTRACT** Amid soaring health spending, there is growing interest in workplace disease prevention and wellness programs to improve health and lower costs. In a critical meta-analysis of the literature on costs and savings associated with such programs, we found that medical costs fall by about \$3.27 for every dollar spent on wellness programs and that absenteeism costs fall by about \$2.73 for every dollar spent. Although further exploration of the mechanisms at work and broader applicability of the findings is needed, this return on investment suggests that the wider adoption of such programs could prove beneficial for budgets and productivity as well as health outcomes.

**Katherine Baicker** (Kbaicker@hsph.harvard.edu) is a professor of health economics at the School of Public Health, Harvard University, in Boston, Massachusetts.

**David Cutler** is a professor of economics at Harvard University.

**Zirui Song** is a doctoral candidate at Harvard Medical School.

## RESULTS - MEDICAL CARE COST SAVINGS

Description	N	Average ROI
Studies reporting costs and savings	15	\$3.37
Studies reporting savings only	7	Not Available
Studies with randomized or matched control group	9	\$3.36
Studies with non-randomized or matched control group	6	\$2.38
All studies examining medical care savings	22	\$3.27

## RESULTS – ABSENTEEISM SAVINGS

Description	N	Average ROI
Studies reporting costs and savings	12	\$3.27
All studies examining absenteeism savings	22	\$2.73



# CASE STUDIES

*Methods, Issues, and Results in Evaluation and Research*

# A Return on Investment Evaluation of the Citibank, N.A., Health Management Program

*Ronald J. Ozminkowski, Rodney L. Dunn, Ron Z. Goetzl, Richard I. Cantor, Jan Murnane, Mary Harrison*

### **Abstract**

**Objectives.** Citibank, N.A., initiated a comprehensive health, demand, and disease management program in 1994, using program services offered by Healthtrac, Inc., of Menlo Park, California. Program components included an initial screening of employees, computerized triage of subjects into higher and lower risk intervention programs, extensive follow-up with the higher risk subjects, and general health education and awareness building. The objective of this study was to estimate the financial impact of this program on medical expenditures.

**Methods.** A quasiexperimental design was applied comparing medical expenditures before vs. after the intervention for program participants and nonparticipants. The 22,838 subjects (11,194 program participants and 11,644 nonparticipants) were followed for an average of 38 months before and after administration of a Healthtrac health risk appraisal (HRA) instrument that triggered the start of the program. To adjust for selection bias to the extent possible with these data, multiple regression models were used to estimate the savings in medical expenditures associated with program participation. The resulting dollar savings were compared to program costs to estimate the economic return on the company's investment in the program.

**Results.** The return on investment (ROI) was estimated to be between \$4.56 and \$4.73

### **PURPOSE**

Corporate worksite health management, health promotion, and wellness programs have often been sold to senior management with the promise that they will save money. The rationale for savings is derived from the intuitive belief that if employees improve their health habits and lead healthier lifestyles, they will become sick less often, use health care benefits infrequently, and spend more time at work being productive.

Increasingly, program supporters recognize the need for better research to support this economic argument for corporate health management.<sup>1</sup> There are, however, several obstacles that stand in the way.



CME Available for this Article at ACOEM.org

## The Impact of the Highmark Employee Wellness Programs on 4-Year Healthcare Costs

**Barbara L. Naydeck, MPH**  
**Janine A. Pearson, PhD**  
**Ronald J. Ozminkowski, PhD**  
**Brian T. Day, EdD**  
**Ron Z. Goetzel, PhD**

### Learning Objectives

- Identify those elements of the Highmark Wellness Program that gained the most participants in the course of the 4-year study period.
- Compare employees who chose to take part in the program with risk-matched non-participants in regard to total healthcare expenditures, annual increases in healthcare expenditures, and return on investment.
- Recall whether and in what way participation in wellness programs influenced spending for preventive care.

**Objective:** *To determine the return on investment (ROI) of Highmark Inc.'s employee wellness programs.* **Methods:** *Growth curve analyses compared medical claims for participants of wellness programs versus risk-matched nonparticipants for years 2001 to 2005. The difference was used to define savings. ROI was determined by subtracting program costs from savings and alternative discount rates were applied in*

**A**ccording to Thorpe<sup>1</sup>, about a quarter of the increase in health care spending in the United States between 1987 and 2002 can be explained by health conditions attributable to lifestyle changes among Americans, especially the dramatic rise in overweight and obesity rates. Reducing morbidity associated with behavioral and biometric risk factors is a public health priority for the nation.<sup>2</sup> Employers, too, are beginning to recognize that they play an important role in improving the health and well-being of their workers, and they can do so by providing evidence-based worksite health promotion programs.<sup>3</sup>

A 1999 survey of worksite health promotion, fielded by the US Office of Disease Prevention and Health Promotion, reported that 90% of worksites offered at least one type of health promotion activity to work-

# CHARACTERISTICS USED IN MATCHING SUBJECTS – AIM IS TO SHOW PARTICIPANTS AND NON-PARTICIPANTS ARE NOT STATISTICALLY DIFFERENT

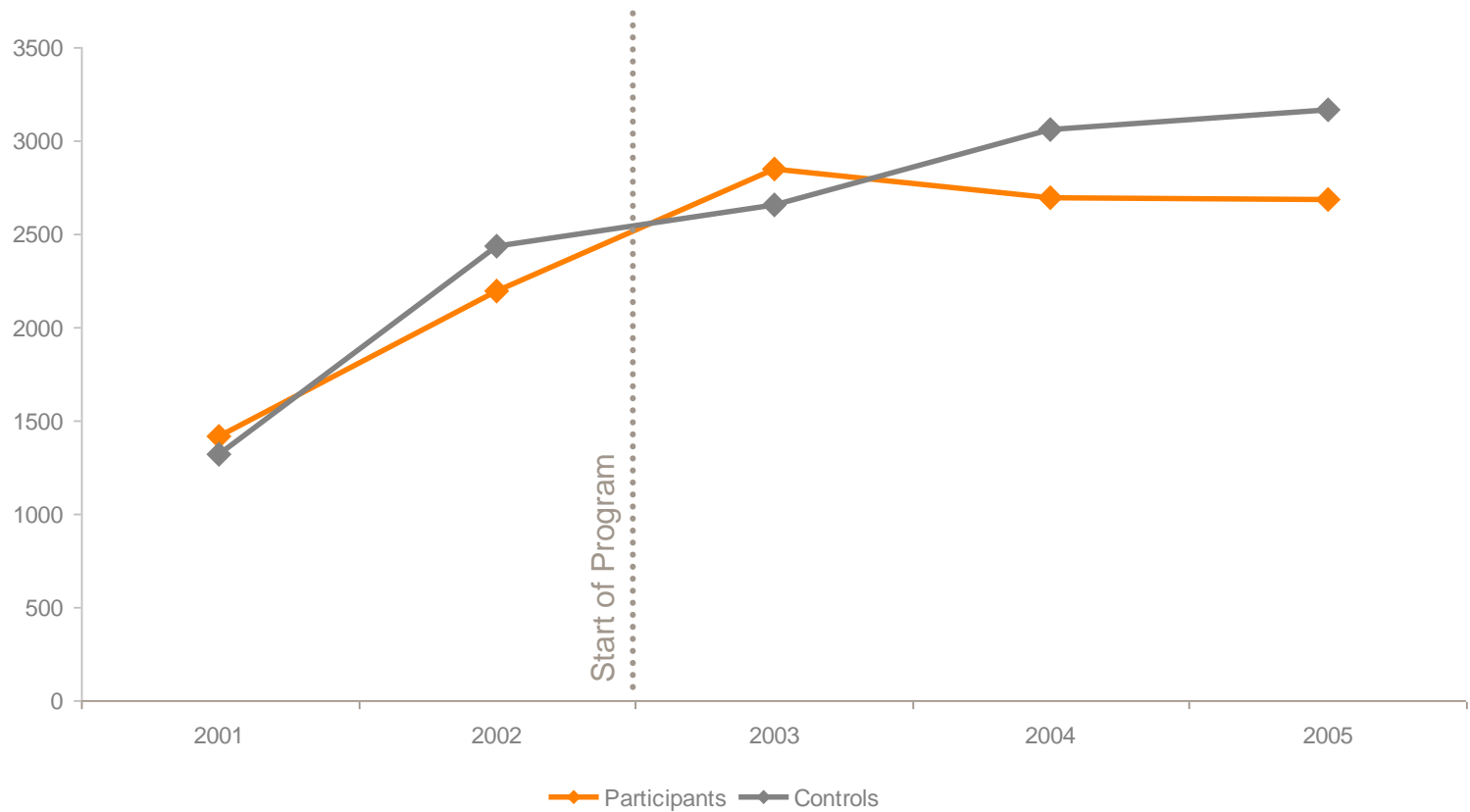
## Overall Comparison

Calendar Year 2001	All Participants	Non-Participants	P-value
	N = 1890	N = 1890	
Male, n (%)	484 (25.6)	484 (25.6)	0.98
Age, 2001 mean years	41.7	41.6	0.94
Net payments for healthcare expenditures in 2001, mean	\$1,414	\$1,318	0.94
Comorbidity Prevalence, %			
Heart disease, n(%)	183 (9.7)	184 (9.7)	
Diabetes, n(%)	13 (0.7)	13 (0.7)	0.99
CCI Group 1 comorbidity, n(%)	849 (44.9)	849 (44.9)	0.98
CCI Group 2 comorbidity, n(%)	528 (27.9)	528 (27.9)	0.98
CCI, median (range)	1.75 (0-17)	1.75 (0-18)	0.97

CCI = Charlson comorbidity index; Group 1 comorbidity includes presence of any of these: chronic obstructive pulmonary disease, rheumatologic disease stomach ulcer or dementia, all as coded by using the Charlson index; Group 2 comorbidity includes presence of any of these: cancer, renal failure, liver disease or cirrhosis, autoimmune disease.

# ANNUAL GROWTH IN NET PAYMENTS

Annual growth in costs, Highmark, Inc.  
For matched-participants and non-participants over four years`



# J&J STUDY – HEALTH AFFAIRS, MARCH 2011

## WELLNESS

By Rachel M. Henke, Ron Z. Goetzel, Janice McHugh, and Fik Isaac

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## Recent Experience In Health Promotion At Johnson & Johnson: Lower Health Spending, Strong Return On Investment

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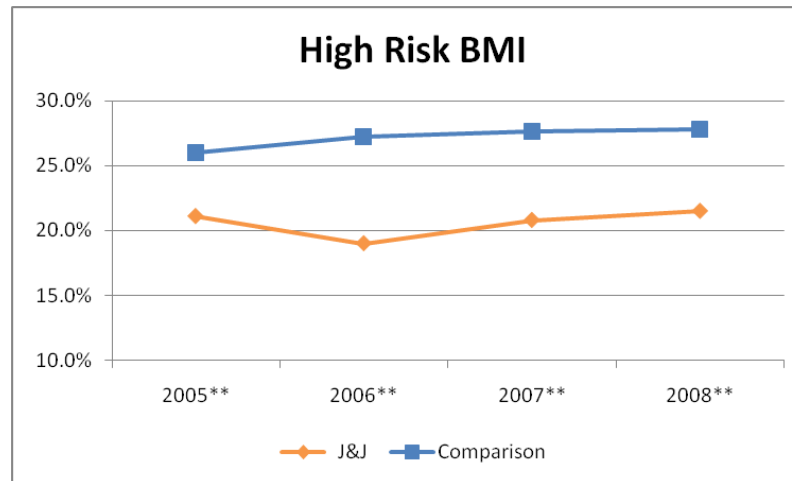
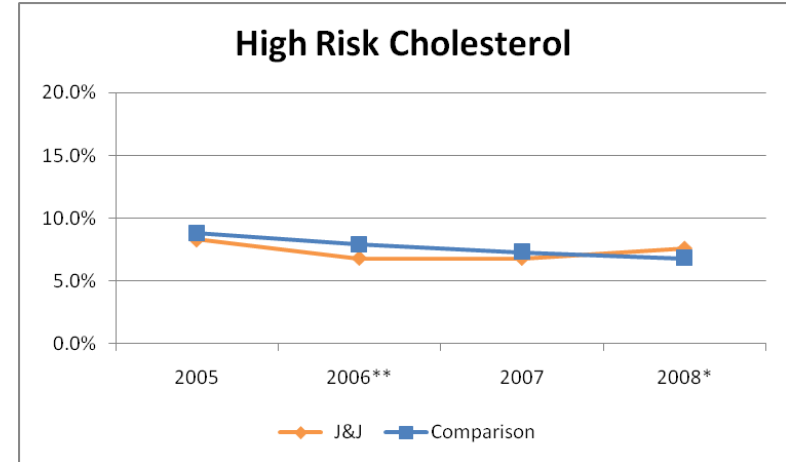
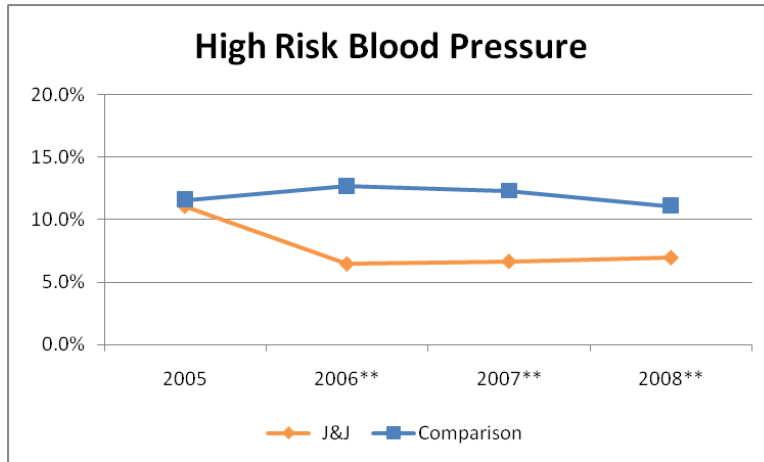
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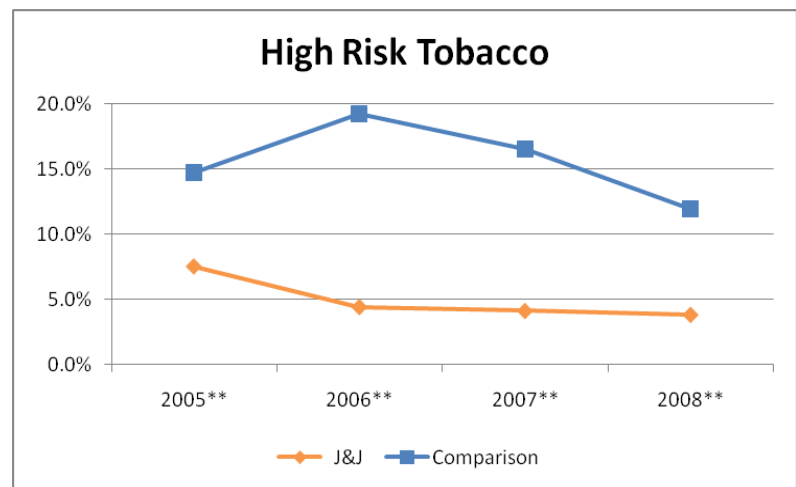
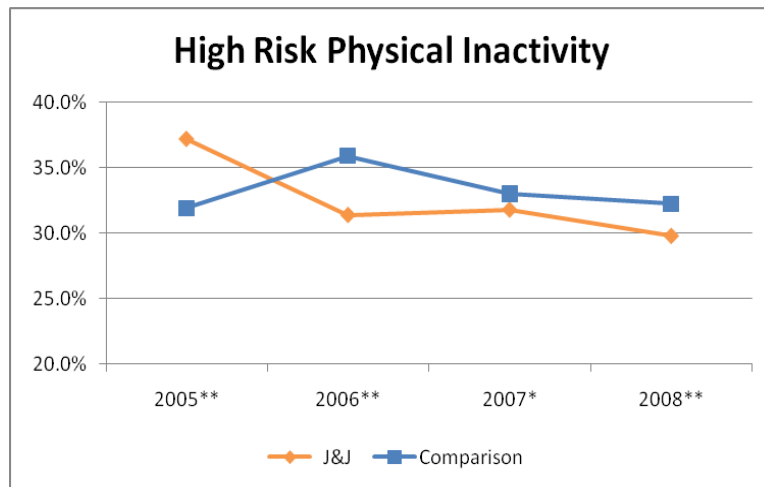
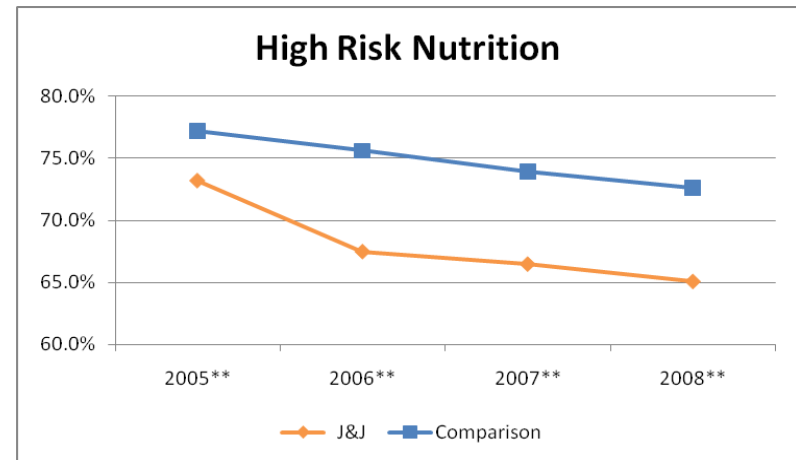
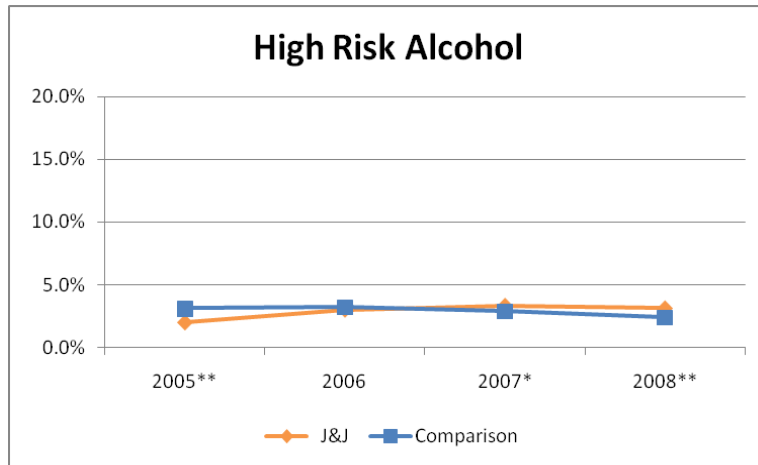
**ABSTRACT** Johnson & Johnson Family of Companies introduced its worksite health promotion program in 1979. The program evolved and is still in place after more than thirty years. We evaluated the program's effect on employees' health risks and health care costs for the period 2002–08. Measured against similar large companies, Johnson & Johnson experienced average annual growth in total medical spending that was 3.7 percentage points lower. Company employees benefited from meaningful reductions in rates of obesity, high blood pressure, high cholesterol, tobacco use, physical inactivity, and poor nutrition. Average annual per employee savings were \$565 in 2009 dollars, producing a return on investment equal to a range of \$1.88–\$3.92 saved for every dollar spent on the program. Because the vast majority of US adults participate in the workforce, positive effects from similar programs could lead to better health and to savings for the nation as a whole.

# HEALTH RISKS – BIOMETRIC MEASURES -- ADJUSTED



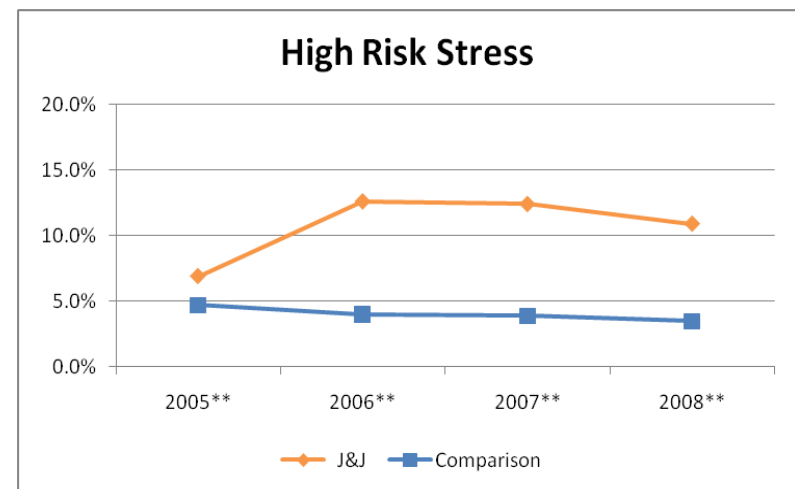
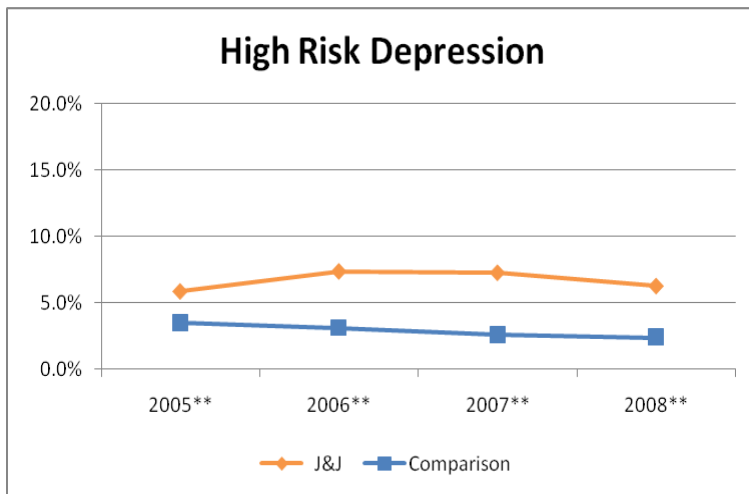
Results adjusted for age, sex, region \* p<0.05 \*\* p<0.01

# HEALTH RISKS – HEALTH BEHAVIORS -- ADJUSTED



Results adjusted for age, sex, region \* p<0.05 \*\* p<0.01

# HEALTH RISKS – PSYCHOSOCIAL -- ADJUSTED

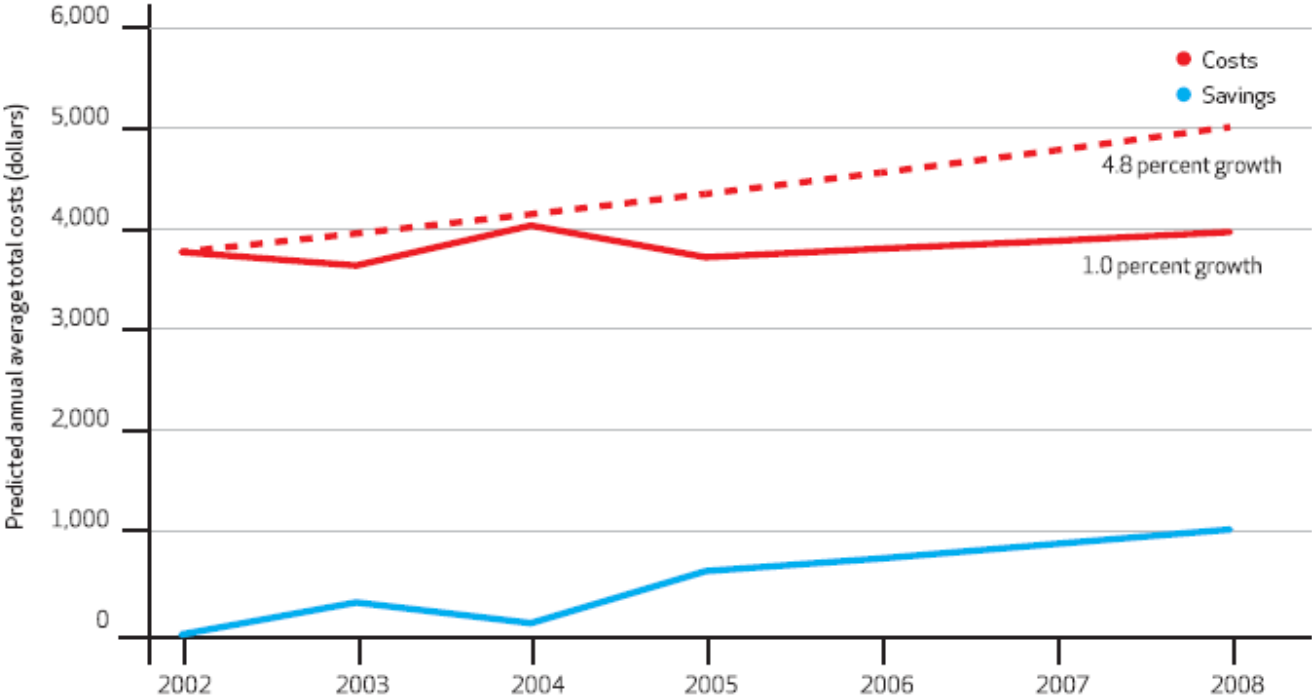


Results adjusted for age, sex, region \* p<0.05 \*\* p<0.01

# ADJUSTED MEDICAL AND DRUG COSTS VS. EXPECTED COSTS FROM COMPARISON GROUP

**EXHIBIT 2**

**Johnson & Johnson Adjusted Medical And Drug Costs Versus Johnson & Johnson Expected Medical And Drug Costs With Comparison-Group Trend**



Average Savings 2002-2008 = \$565/employee/year

Estimated ROI: \$1.88 - \$3.92 to \$1.00



# Vanderbilt – 8-Year Study

## Health Risk Factor Modification Predicts Incidence of Diabetes in an Employee Population

### *Results of an 8-Year Longitudinal Cohort Study*

*Lori Rolando, MD, MPH, Daniel W. Byrne, MS, Paula W. McGown, MSN, Macc, RN, FNP-BC, CPA,  
Ron Z. Goetzel, PhD, Tom Elasy, MD, MPH, and Mary I. Yarbrough, MD, MPH, FACOEM, FACPM*

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**Objective:** To understand risk factor modification effect on Type 2 diabetes incidence in a workforce population. **Methods:** Annual health risk assessment data ( $N = 3125$ ) in years 1 through 4 were used to predict diabetes development in years 5 through 8. **Results:** Employees who reduced their body mass index from 30 or more to less than 30 decreased their chances of developing diabetes (odds ratio = 0.22, 95% confidence interval: 0.05 to 0.93), while those who became obese increased their diabetes risk (odds ratio = 8.85, 95% confidence interval: 2.53 to 31.0). **Conclusions:** Weight reduction observed over a long period can result in clinically important reductions in diabetes incidence. Workplace health promotion programs may prevent diabetes among workers by encouraging weight loss and adoption of healthy lifestyle habits.

With results from clinical studies as background, many employers have introduced workplace health promotion programs to support their workers who wish to improve their health, with the ultimate aim of preventing unnecessary health care spending and boosting productivity.<sup>11–18</sup> Nevertheless, a challenge faced by practitioners and researchers alike is documenting the scalability of risk-reduction programs and their ability to prevent chronic diseases such as diabetes in large populations. Few long-term studies have been performed in workplace settings in which workers are observed over several years in an attempt to determine whether changes in certain health habits and biometric measures lead to the onset of diseases or, alternately, their prevention. One exception is a 7-year study of Vanderbilt University employees, whose changes in health risks were reported previously.<sup>19</sup> At Vanderbilt University, researchers found

# Obesity and Diabetes

**TABLE 2.** Obesity\*

Group	Year 1	Years 2–4	Developed Diabetes in Years 5–8	OR (95% CI)	<i>P</i>
Keep risk factor	BMI $\geq$ 30	BMI $\geq$ 30	55/544 (10.1%)		
Lose risk factor	BMI $\geq$ 30	BMI <30	2/82 (2.4%)	0.22 (0.05–0.93)	0.039
Keep healthy habit	BMI <30	BMI <30	25/2,163 (1.2%)		
Lose healthy habit	BMI <30	BMI $\geq$ 30	3/32 (9.4%)	8.85 (2.53–31.0)	0.001
Mixed/unstable weight pattern (“yo-yo”)			13/304 (4.3%)		

BMI, body mass index; CI, confidence interval; OR, odds ratio.

\**P* < 0.001 using a chi-squared test with 5 groups.

# SO, WHAT IS IMPORTANT TO EMPLOYERS?

## Financial Outcomes

Cost savings, return on investment (ROI) and net present value (NPV).

Where to find savings:

- Medical costs
- Absenteeism
- Short term disability (STD)
- Safety/Workers' Comp
- Presenteeism

## Health Outcomes

Adherence to evidence based medicine.

Behavior change, risk reduction, health improvement.

## QOL and Productivity Outcomes

Improved “functioning” and productivity

Attraction/retention – employer of choice

Employee engagement

Corporate social responsibility (CSR)

Balanced scorecard

# WHERE WE NEED TO GO...

- Old paradigm
  - Bad behavior (poor diet)...leads to
  - High risk condition (obesity)...leads to
  - Disease (diabetes)...leads to
  - Death
- New paradigm
  - Good health (physical, mental, emotional, social, financial, spiritual)...leads to
  - Wellness (energy)...leads to
  - Purposeful life

**AND HIGH VALUE**

