



## Don't Throw Out the Baby with the Bathwater - A Measured Response to Critics of Workplace Health Promotion and Disease Prevention Programs

---

*Ron Z. Goetzel, Ph.D.*

*Truven Health Analytics -- Johns Hopkins University*

HERO Webinar -- April 22, 2015

# Do Health Promotion (Wellness) Programs Work?

---



# What Do We Mean When We Say: A Wellness Program Works?

---

- “Make workers aware of their health and how it improves quality of life.”
- “High participation and engagement.”
- “Lose weight, stop smoking, exercise more.”
- “Medical claims costs should go down.”
- “Less absenteeism, fewer safety incidents.”
- “Attract the best talent.”
- “Happier workers with more energy.”
- “Create a culture of health.”

REALLY!?!?



# What Do We Mean When We Say: A Wellness Program Works? (con't)

---

“Produce a positive return on investment (ROI)”



---

# Really?





# LA Times

Visual Browse

ADVERTISMENT

\*Some taxes, fees additional

LA Times

SEARCH

SUBSCRIBE | LOG IN

MEMBER CENTER

PLACE AN AD

LOCAL >

CALIFORNIA >

SPORTS >

ENTERTAINMENT >

BUSINESS >

OPINION >

Los Angeles Times

**The Economy Hub**

With Michael Hiltzik

Facebook Twitter Email Print

**Why 'wellness' program scams cost employers and harm employees**

Los Angeles Times  
**Business / The Economy Hub**

This article is related to: Medical Research

**Michael Hiltzik**  
LOS ANGELES TIMES  
michael.hiltzik@latimes.com

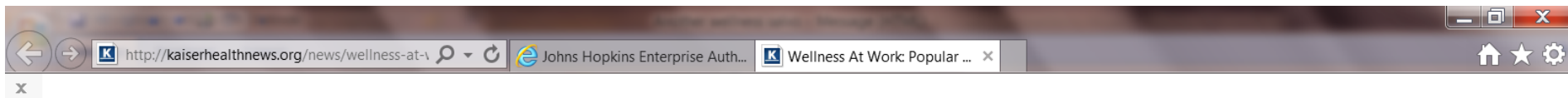
**@hiltzikm** BP cherry-picks a study to dodge blame for massive deaths of Gulf dolphins <http://t.co/Bdb1E0CYDR>

SHARE THIS

FOLLOW MICHAEL HILTZIK

Windows Taskbar: Links Desktop, 5:12 PM 2/16/2015

# National Public Radio



ABOUT US | CONTACT US | EMAIL SIGN-UP

Search

FOLLOW US: @KHNews Facebook LinkedIn RSS Feeds

HOME THE HEALTH LAW MEDICARE MEDICAID STATES COST & QUALITY HEALTH INDUSTRY INSURANCE AGING MENTAL HEALTH UNINSURED

## Wellness At Work: Popular But Unproven

By Julie Rovner | December 9, 2014

- EMAIL
- TWEET
- SHARE
- SHARE
- PRINT

If you get health insurance at work, chances are you have some sort of wellness plan, too. But so far there's no real evidence as to whether these plans work.

One thing we do know is that wellness is particularly popular with employers right now, as they seek ways to slow the rise of health spending. These initiatives can range from urging workers to use the stairs all the way to requiring comprehensive health screenings. The [2014 survey of employers](#) by the Kaiser Family Foundation found that 98 percent of large employers and 73 percent of smaller employers offer at least one wellness program. (Kaiser Health News is an editorially independent program of KFF.)

### Top Stories



Advocates Press For Uninsured To Get Special Enrollment Option After They See Tax Penalties FEB 13



Government To Grade Nursing Homes On Tougher Scale FEB 12



FRONTLINE CHAT: "How Would You Spend Your Final Days?" FEB 12

RSS





# New York Times

http://www.nytimes.com/2014/09/12/upshot/do-w

THE UPSHOT | Do Workplace Wellness Programs Work? Usually Not

SHARE 74

## TheUpshot

EDITED BY DAVID LEONHARDT  
FOLLOW US: [Facebook] [Twitter] [RSS]

THE NEW HEALTH CARE

### Do Workplace Wellness Programs Work? Usually Not

SEPT. 11, 2014

By Austin Frakt and Aaron E. Carroll

EMAIL  
FACEBOOK  
TWITTER  
SAVE  
MORE

**GONE WITH THE WIND**

Most news coverage of the new Kaiser Family Foundation annual survey on employer-sponsored health plans has focused on the fact that growth in premiums in 2013 was as low as it has ever been in the 16 years of the survey. But buried in the details of the report are some interesting insights into how employers think about controlling health care costs. One example is that they're very fond of workplace wellness programs. This is surprising, because while such programs sound great, research shows they rarely work as advertised.

Wellness programs aim to encourage workers to be more healthy. Many use financial incentives to motivate workers to monitor and improve their health, sometimes through lifestyle-modification programs aimed at lowering cholesterol or blood pressure, for instance. Some

Roman Muradov

Links Desktop 9:09 AM 9/16/2014

# A Review of the Evidence:

---



---

## FAST TRACK ARTICLE

---

### Do Workplace Health Promotion (Wellness) Programs Work?

*Ron Z. Goetzel, PhD, Rachel Mosher Henke, PhD, Maryam Tabrizi, PhD, MS, Kenneth R. Pelletier, PhD, MD (hc), Ron Loeppke, MD, MPH, David W. Ballard, PsyD, MBA, Jessica Grossmeier, PhD, MPH, David R. Anderson, PhD, LP, Derek Yach, MBChB, MPH, Rebecca K. Kelly, PhD, RD, CDE, Tre' McCalister, MA, EdD, Seth Serxner, PhD, Christobel Selecky, MA, Leba G. Shallenberger, DrPh, James F. Fries, MD, Catherine Baase, MD, Fikry Isaac, MD, MPH, K. Andrew Crighton, MD, Peter Wald, MD, MPH, Ellen Exum, BS, Dexter Shurney, MD, MBA, MPH, and R. Douglas Metz, DC*

**JOEM • Volume 56, Number 9, September 2014**

# JOEM Article

---

## The RAND Study

In 2013, RAND published results from a federally funded study focused on workplace health promotion programs.<sup>37</sup> The project was multifaceted and involved a literature review, site visits to companies, an employer survey, and analysis of a large multi-employer database comprising more than half a million employees whose medical and health risk records were analyzed over a period of several years, resulting in 1.8 million person-years of data. In media reports, the study purportedly “delivered a blow” to the wellness “industry” and “cast doubt” about programs’ effectiveness given the “grim” results.<sup>42</sup>

Despite the media spin on the findings, the RAND study reported “significant,” “clinically meaningful,” and “long-lasting” improvements in employees’ weight, smoking status, and physical activity—but not in cholesterol values. In terms of financial outcomes, RAND found that participants had lower health care costs and reduced service utilization compared with statistically matched non-participants, but the results were not statistically significant. Therefore, the study authors were unable to conclude that the programs saved money, although they inferred that they were probably cost neutral. The small number of individuals included in subcomponents of the RAND studies (eg, only 746 individuals were included in the smoking analysis and 12,127 in the cost analysis—out of 567,506 employees in the database) impacts the generalizability of results to the companies included in the study and to workplace health promotion programs in general.

# Mattke and Liu Letter to the Editor

Comment\_on\_Do\_Workplace\_Health\_Promotion.22.pdf - Adobe Reader

File Edit View Window Help

9 (1 of 1) 145%

Tools Sign Comment Extended

## LETTERS TO THE EDITOR

*Readers are invited to submit letters for publication in this department. Submit letters online at <http://joem.edmgr.com>. Choose "Submit New Manuscript." A signed copyright assignment and financial disclosure form must be submitted with the letter. Form available at [www.joem.org](http://www.joem.org) under Author and Reviewer information.*

### Comment on "Do Workplace Health Promotion (Wellness) Programs Work?"

*To the Editor:*

In their article, Goetzel and colleagues offer a defense of workplace wellness programs. Because much of their discussion is based on a critique of our previous work, we wanted to comment on their assessment. First and foremost, we do agree that the workplace is an appropriate place to try and improve health-related behaviors. Our research mainly suggests that the current approach that many employers take does achieve this goal, but it does not make good business sense.

Wellness programs today rely heavily on identifying individuals at risk through

biometric screening and questionnaires and counseling those individuals on behavior change. We have shown that program participants indeed accomplish significant reductions in health risks, albeit of a modest magnitude.<sup>1</sup> But we have also found repeatedly that those changes do not translate into gross savings in the form of lower health care cost or reduced absenteeism, even after 7 years, let alone into net savings in the form of return on investment.<sup>2</sup>

Our interpretation of the findings is that the effect of the prevailing identification and counseling programs on health risk is too small and the ensuing effect on health care cost too distant to generate savings. Simply speaking, many programs try to address a public health issue with a medicalized intervention. At the same time, we agree with the authors that a systematic effort to instill a culture of health into the workplace has the potential to improve health and reduce cost, but caution

that this theoretically attractive proposition has not been validated through empirical research.

In summary, we encourage employers to offer evidence-based and well-implemented wellness programs, but caution that they should watch program cost in relation to program effect closely, just as they do with every other investment.

**Soeren Mattke, MD, DSc**  
**Hangsheng Liu, PhD**  
RAND Health Advisory Services  
RAND Corporation, Boston, Mass.

### REFERENCES

- Osilla KC, Van Busum K, Schnyer C, Larkin JW, Eibner C, Mattke S. Systematic review of the impact of worksite wellness programs. *Am J Manag Care.* 2012;18:e68–e81.
- Liu H, Harris KM, Weinberger S, Serxner S, Mattke S, Exum E. Effect of an employer-sponsored health and wellness program on medical cost and utilization. *Popul Health Manag.* 2013;16:1–6.

© 2008 Thomson Reuters



# Goetzel Response to Mattke and Liu

Comment\_on\_Do\_Workplace\_Health\_Promotion.23.pdf - Adobe Reader

File Edit View Window Help

10 (1 of 1) 171%

Tools Sign Comment Extended

Click on Sign to add text and place signatures on a PDF file.

## RESPONSE TO LETTER TO THE EDITOR

*Readers are invited to submit letters for publication in this department. Submit letters online at <http://joem.edmgr.com>. Choose "Submit New Manuscript." A signed copyright assignment and financial disclosure form must be submitted with the letter. Form available at [www.joem.org](http://www.joem.org) under Author and Reviewer information.*

### Comment on "Do Workplace Health Promotion (Wellness) Programs Work?" (September 2014, Volume 56, Issue 9)

**Response:**

I wish to thank Drs Mattke and Liu for their letter. I am heartened to hear they agree that the workplace is an appropriate setting for instituting programs aimed at improving employees' health and well-being. I

ences their performance on the job, lessens their likelihood of being ill or absent, and increases their willingness to stay with their jobs rather than look for work elsewhere. I would think that all of the above outcomes *do* make good business sense, for both the employer and the employee.

I worry that medical cost savings is the only metric used when judging whether a health promotion program is a good business investment. I believe that there is greater opportunity to see improvements in business metrics resulting from positive employee relations, higher worker productivity, and increased retention rates than from cutting health care costs. Furthermore, the emphasis should be on the value-on-investment from these programs. I question an ROI re-

noted for program participants compared with nonparticipants.

The authors cite the PepsiCo study as an example of a program that did not lower health care costs or absenteeism even after 7 years. The analyses separated the effects of lifestyle and disease management. I would argue that a well-designed program would not separate these components, but rather combine them in a holistic fashion to achieve the best outcomes. Indeed, Mattke and Liu found that employees who joined both lifestyle and disease management achieved the greatest savings, \$1920 per year. Also, of note, the authors found a significant program impact from lifestyle management on self-reported absenteeism, although the dollar value associated with



# 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>

# Sample Sizes

**Table B1: Creation of an Analytic Sample from the Data Aggregation Project Secondary Data**

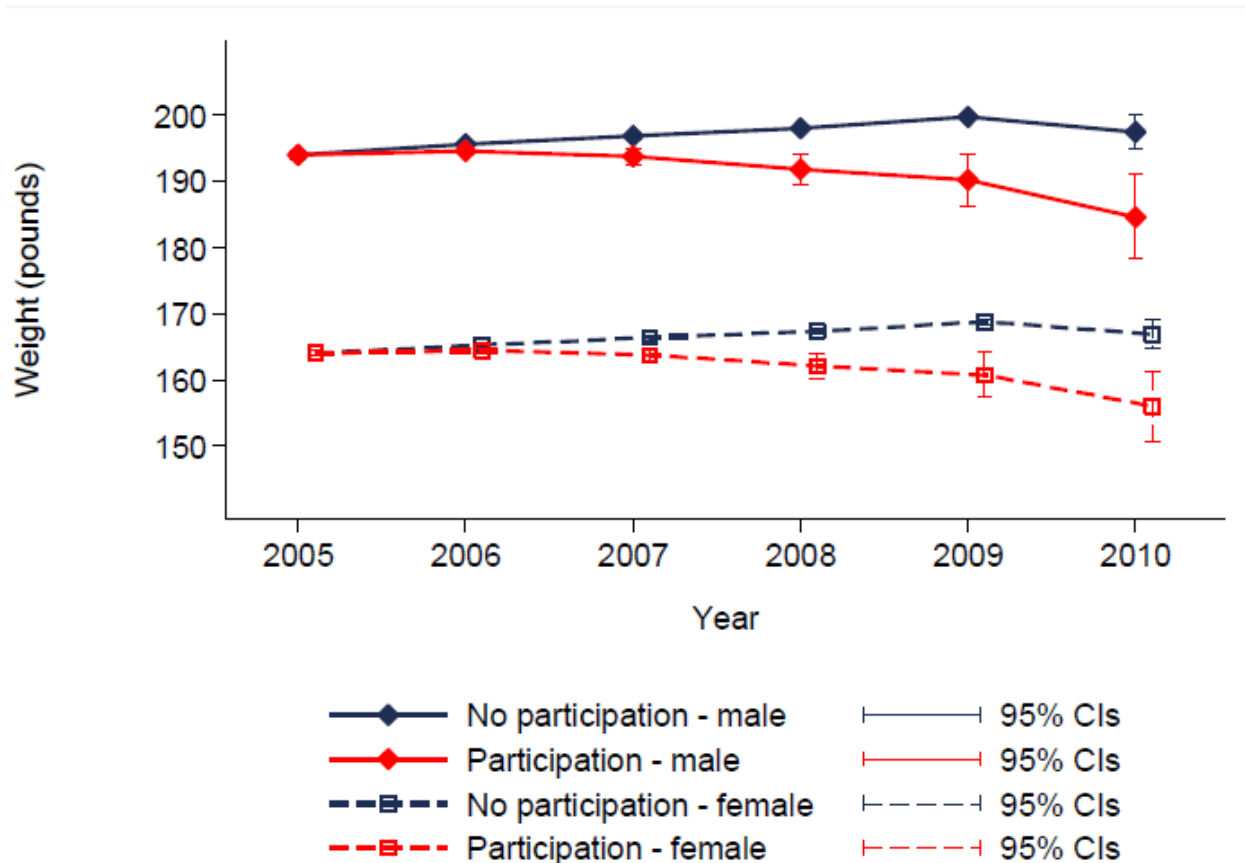
<b>Inclusion Criteria</b>	<b>Number of EmployeeYears</b>	<b>Number of Unique Employees</b>	<b>Number of Employers</b>
1. Aged 18–64	1,793,884	567,506	7
2. One or more full-year enrollment	1,351,478	428,974	7
3. Active full-time	1,206,327	382,459	7
4. Not enrolled in HMO	1,039,136	327,024	7
5. With complete claims data	977,100	292,792	6
6. Not pregnant during data year	951,112	287,694	6
<b>Additional criteria for analytic subsamples</b>			
HRA data available	611,862	232,037	6
Program participation data available	615,770	173,382	4
BMI data available	306,950	149,844	6
Total cholesterol data available	104,086	66,301	6
Exercise data available	109,487	58,858	3
Smoking status data available	111,912	61,486	4

SOURCE: RAND analysis of health plan claims and screening and wellness program data in the CCA database.

NOTE: Data on high-density lipoprotein and low-density lipoprotein are not complete.

# Weight Reduction Results (N=3,924)

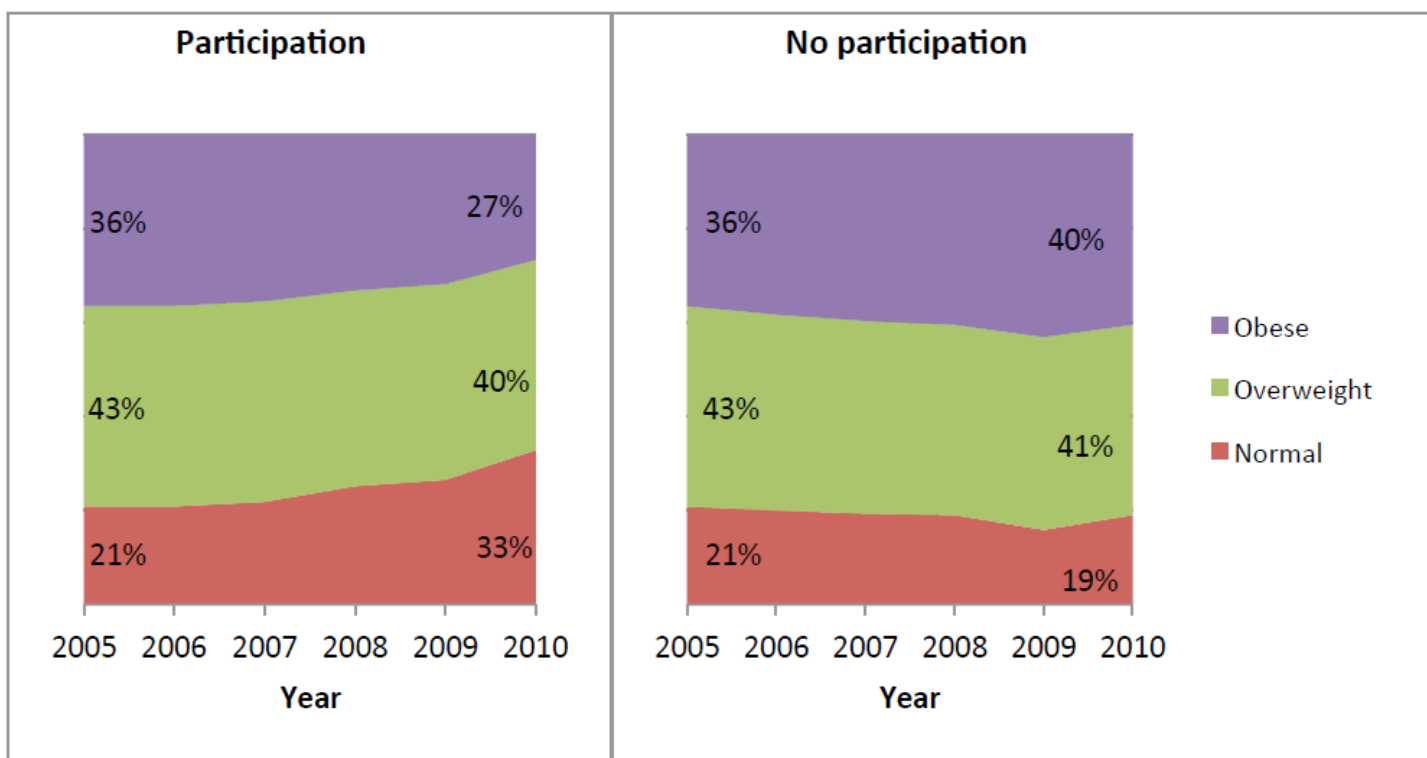
Figure 4.16: Cumulative Simulated Effects of Participation in a Weight Control Program on Body Weight over Five Years





# Over Five Years...Participants: 36% → 27% Obese Non-Participants: 36% → 40% Obese

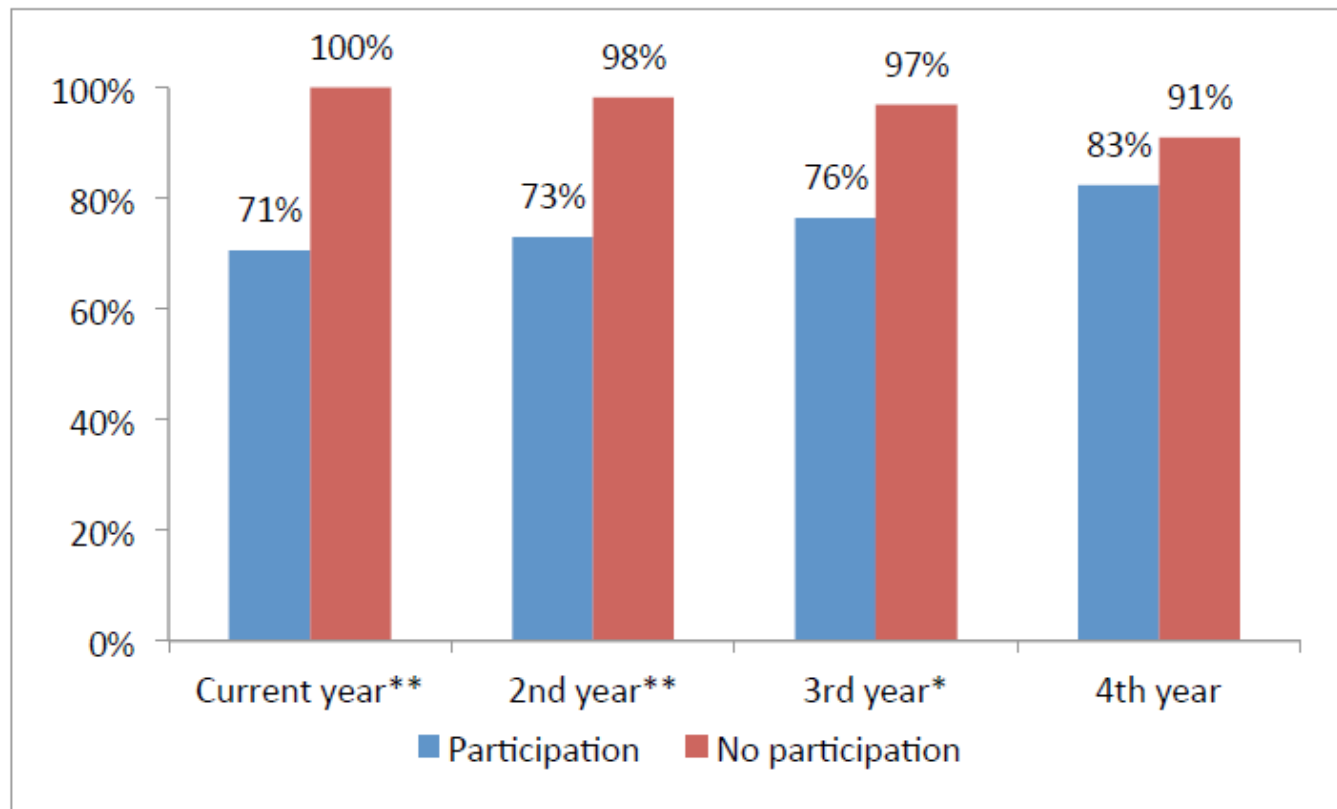
**Figure 4.17: Percentage Distribution of the Cumulative Simulated Effects of Consecutive Participation in a Weight Control Program on Employee Weight Status**



SOURCE: RAND analysis of health plan claims and screening and wellness program data in the CCA database.  
NOTE: Simulation results are based on continuous participation in 2006–2010 of the model estimation sample.

# Smoking Results – 8%-29% quit rate (N=746)

**Figure 4.12: Percentage of Smokers Who Continue Smoking After One-Year Participation in a Smoking Cessation Program, Compared to Nonparticipating Smokers**



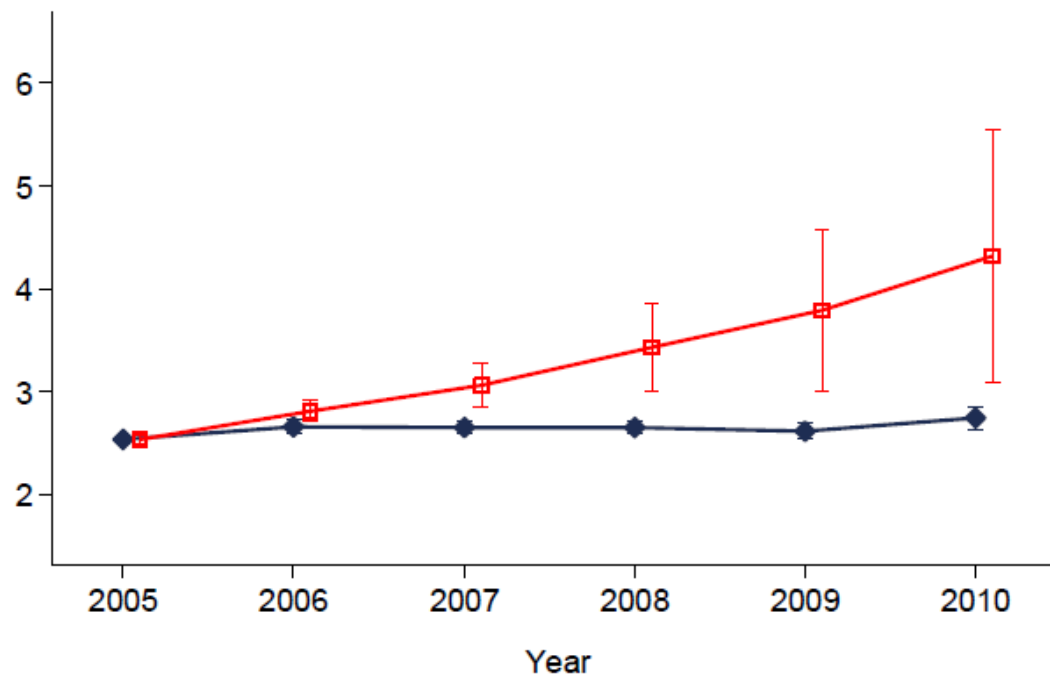
SOURCE: RAND analysis of health plan claims and screening and wellness program data in the CCA database.

NOTES: 2005–2010 data are from one employer; 746 propensity score matched pairs.

\* $p < 0.05$ ; \*\* $p < 0.01$ .

# Exercise Results – 2.5 → 4.0 Days/Week (N=2,303)

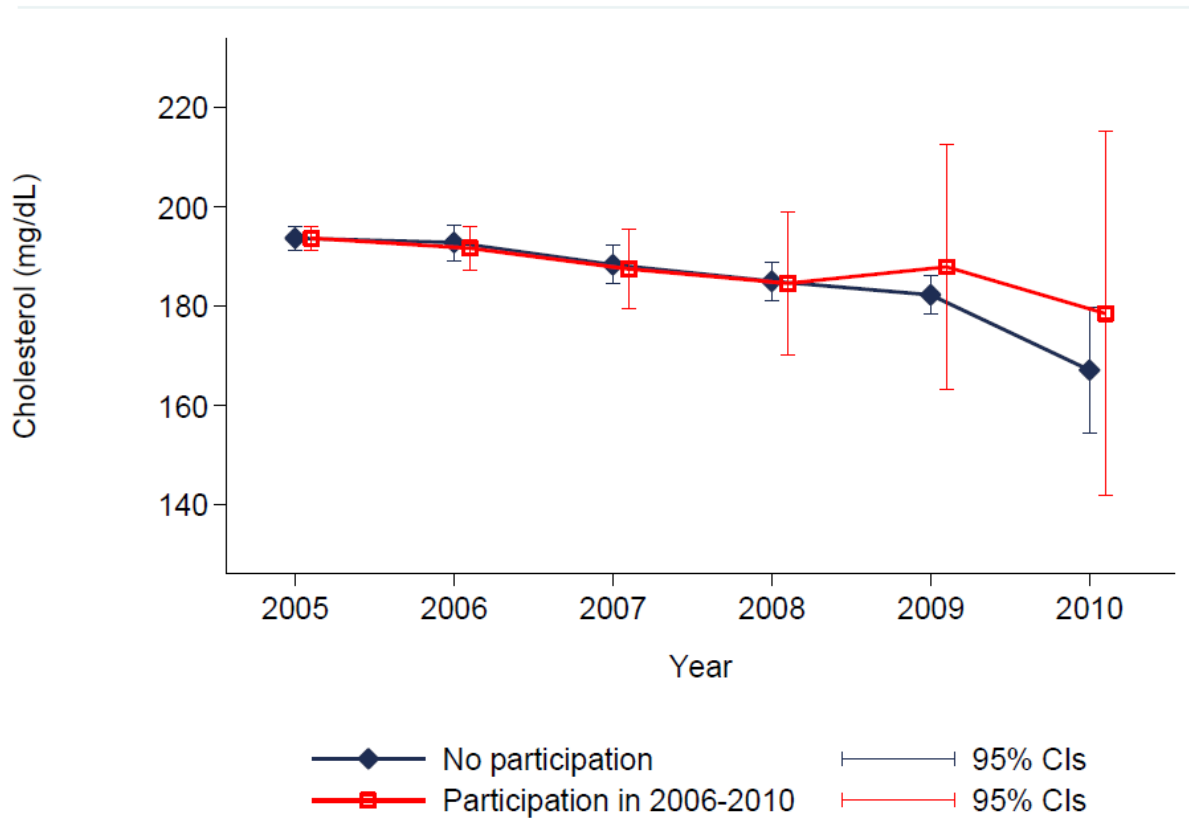
Figure 4.11: Cumulative Simulated Effects of Exercise Program Participation on Exercise Frequency



—◆— No participation      —|— 95% CIs  
—■— Participation in 2006-2010      —|— 95% CIs

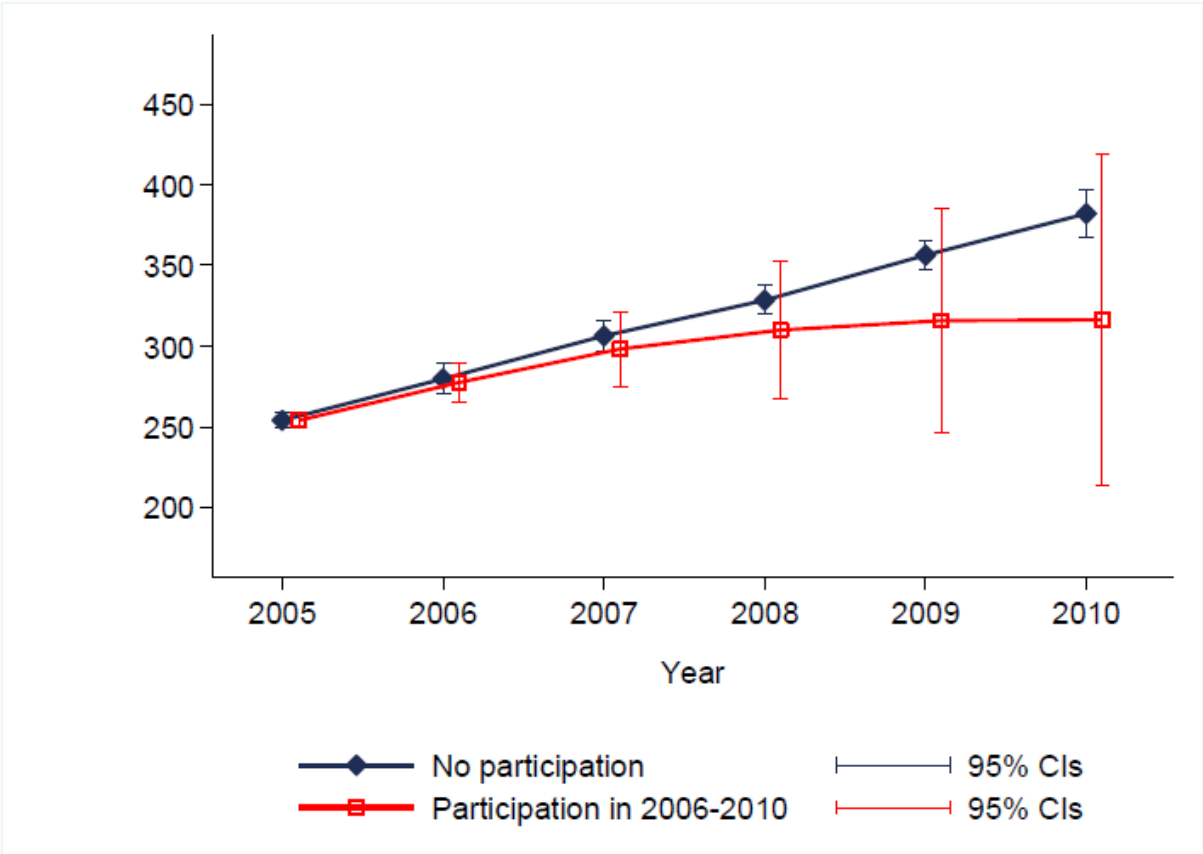
# Cholesterol Results – No Difference (N=1,341)

Figure 4.20: Cumulative Simulated Effects of Cholesterol Program Participation on Cholesterol Levels



# Cumulative PMPM Health Care Cost Differences: Partic Vs. Non-Partic = \$65.50 (N=12,127)

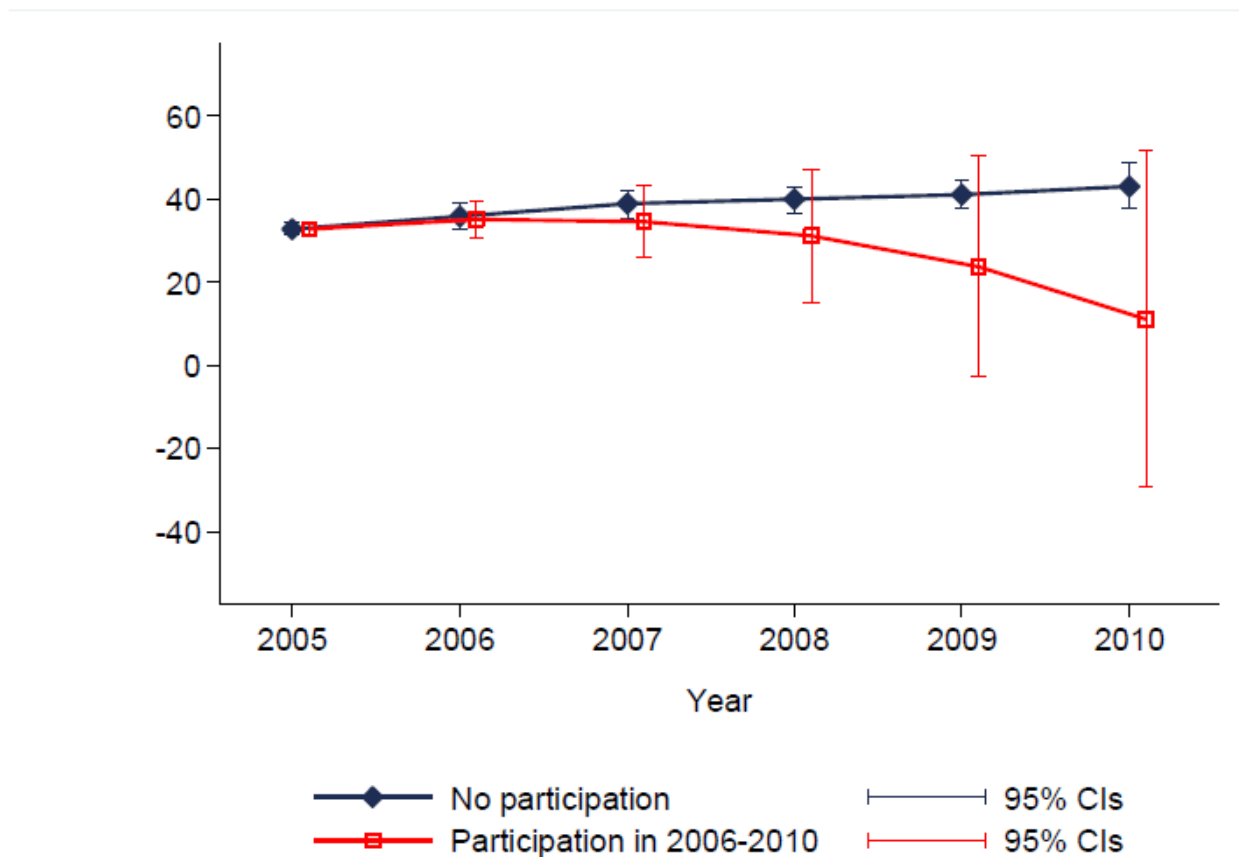
Figure 4.24: Cumulative Simulated Effect of Wellness Program Participation on Total Health Care Costs per Health Plan Member per Month





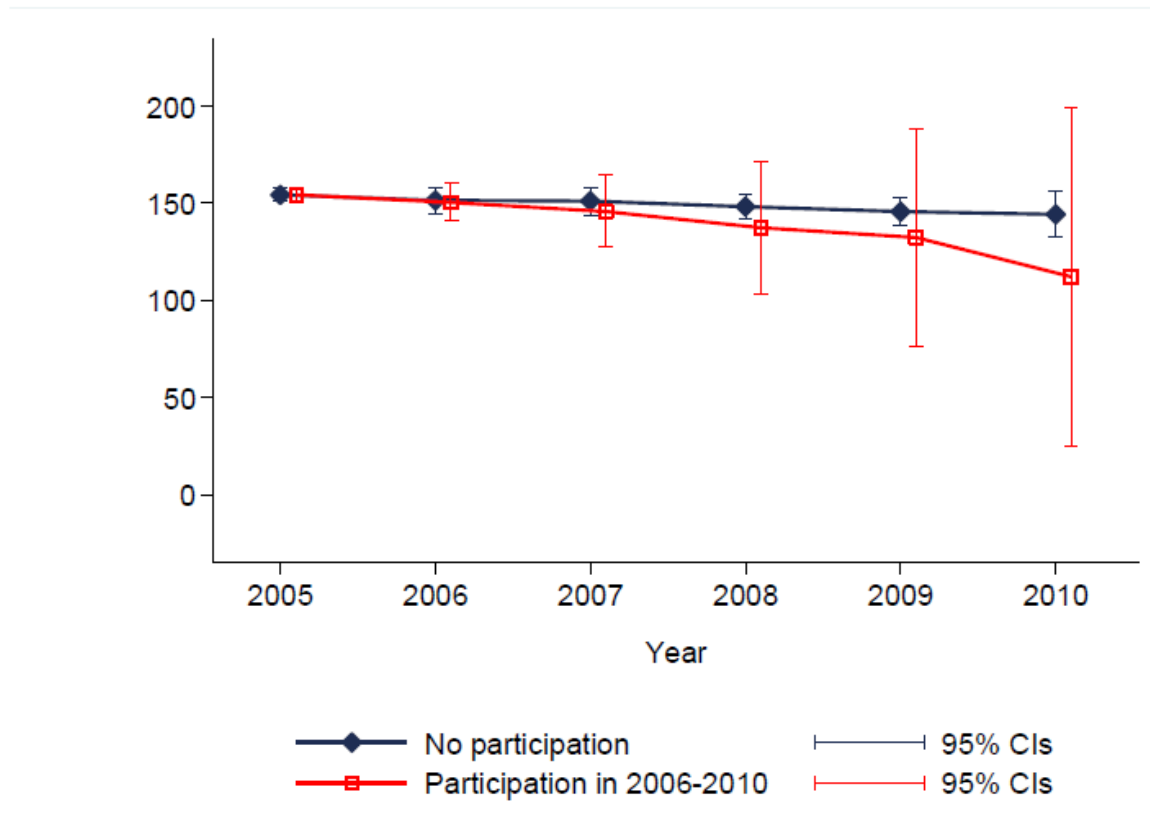
# Inpatient Admissions

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



# Media Report – Rand Study

The **Internet of Everything** is changing everything.  
Is your network ready? [Learn more](#)

**CISCO**  
TOMORROW starts here.

## Exclusive: 'Workplace wellness' fails bottom line, waistlines - RAND

BY SHARON BEGLEY  
NEW YORK Fri May 24, 2013 6:39pm EDT

3 COMMENTS | [Tweet](#) 127 | [Share](#) 173 | [Share this](#) | [8+1](#) | [7](#) | [Email](#) | [Print](#)

**RELATED NEWS**

- Column: Retirement healthcare costs decline - Fidelity
- Analysis: Big insurers wary of entering new Obamacare markets
- Insight: Miner's union charts new course to save benefits in bankruptcy

(Reuters) - A long-awaited report on workplace wellness programs, which has still not been publicly released, delivers a blow to the increasingly popular efforts, Reuters has learned, casting doubt on a pillar of the Affordable Care Act and a favorite of the business community.

According to a report by researchers at the RAND Corp,

**MOST POPULAR**

- 1 Ceasefire in east Ukraine frays, woman killed by shelling | [VIDEO](#)
- 2 Artillery attack challenges ceasefire in east Ukraine | [VIDEO](#)
- 3 U.S. air strikes target insurgents near Iraq's Haditha Dam
- 4 After Syria and Iraq, Islamic State makes inroads in South Asia
- 5 In New Hampshire, Republican Brown angles for second Senate upset

**PROGRESS IS** Goldman Sachs

Windows taskbar: 10:34 AM 9/7/2014

# New York Times Story

The screenshot shows a web browser window displaying a New York Times article. The browser's address bar shows the URL: <http://www.nytimes.com/2014/01/07/your-money>. The page header includes the New York Times logo, navigation links for 'SECTIONS', 'HOME', and 'SEARCH', and buttons for 'SUBSCRIBE NOW' and 'LOG IN'. A 'Capital One 360' logo is also visible. Below the header, there are several article teasers with images and titles. The main article is titled 'Study Raises Questions for Employer Wellness Programs' by ANN CARRNS, dated JAN. 6, 2014. The article text discusses workplace wellness programs and their popularity. On the left side of the article, there are social media sharing options for EMAIL, FACEBOOK, TWITTER, and SAVE, along with a 'MORE' link and a 'IN THEATERS OCT 3' badge. On the right side, there is a promotional banner for 'BOSS WOMENSWEAR FASHION SHOW NEW YORK LIVE STREAM SEPTEMBER 10, 2:30 PM EST'. The bottom of the screenshot shows a Windows taskbar with various application icons and a system tray displaying the time as 10:40 AM on 9/7/2014.

http://www.nytimes.com/2014/01/07/your-money Study Raises Questions for ... x

SECTIONS HOME SEARCH The New York Times SUBSCRIBE NOW LOG IN Capital One 360

YOUR MONEY The Question of Coverage for Ride Service Drivers

BIG DEAL Puerto Rico Luring Buyers With Tax Breaks

WEALTH MATTERS Investing to Make a Difference Is Gaining Ground

RETIRING Financial Schemes Against the Elderly Are Increasing

SHORTCUTS There's More to Estate Planning Than Just the Will

YOUR MONEY | YOUR MONEY ADVISER

## Study Raises Questions for Employer Wellness Programs

By ANN CARRNS JAN. 6, 2014

EMAIL FACEBOOK TWITTER SAVE MORE

IN THEATERS OCT 3

If you work for a big employer — or even a small one — you probably have encountered some sort of workplace wellness program. You most likely filled out a health questionnaire, which may have led to a recommendation that you attend exercise classes, quit smoking or participate in telephone coaching to help you control diabetes or asthma.

The programs have become increasingly popular, as companies aim to lower their medical costs and lift productivity by promoting healthier behavior among workers. About half of employers with at least 50 workers offer them, as do 90 percent of employers with more than 50,000 employees, according to a study for the Labor Department by the RAND Corporation, a nonprofit research group. Some companies offer financial perks to employees who participate, like lower health insurance premiums, gift cards or even cash.

BOSS WOMENSWEAR FASHION SHOW NEW YORK LIVE STREAM SEPTEMBER 10, 2:30 PM EST

Links Desktop 10:40 AM 9/7/2014



# RAND Report – Media Translation

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

Secret RAND Report Trashes Employer 'Wellness' Programs

May 25th, 2013 by Morgan Downey

NO OTHER HUMAN CONDITION COMBINES OBESITY'S PREVALENCE AND PREJUDICE; SICKNESS AND STIGMA; DEATH AND DISCRIMINATION.

**THE DOWNEY Obesity Report**  
Research • Health • Policy

About Research Health/Stigma Policy News Economics Fact Sheets/Resources Managing Obesity Daily Downey

**Secret RAND Report Trashes Employer 'Wellness' Programs**

Leave a reply »

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.

In addition, participation "was not associated with significant

**SUBSCRIBE THE DAILY DOWNEY**

**PREVIOUS ENTRY**  
Employer Wellness, EEOC, Data Warehousing, Predictive Analytics

**NEXT ENTRY**  
Administration Issues Improved Employer Wellness Regulations; Bigger Role for MDs; Opening for Drugs and Surgery?

**TAG CLOUD**

Consensus, cardiovascular disease, children, NIH, diabetes, FDA, Physical Activity, Administration, Oregon genetics

**RECENT POSTS**

- Fat Bullying Can Kill
- The Memory of Starvation
- Problems With Defining Diabetes
- USPSTF Seeks Comments Due Nov. 19
- Fast Food Giants Target Obese-Prone Children
- DNC Resolution on Dotty
- A Tribute to My Wife, Doty

# 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  
©2014 Project HOPE—  
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](mailto: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.



# Lifestyle and Disease Management

---

## Disease Management

patient self-care knowledge and abilities. The ten conditions covered by the disease management program were asthma, coronary artery disease, atrial fibrillation, congestive heart failure, stroke, hyperlipidemia, hypertension, diabetes, low back pain, and chronic obstructive pulmonary disease. Completion of a disease management program typically requires six to nine months, during which participants have a series of calls with a nurse that average fifteen to twenty-five minutes per call. Completion of a

## Lifestyle Management

coaching for those with higher risk levels. In 2011 there were five distinct lifestyle management programs: weight management, nutrition management, fitness, stress management, and smoking cessation. Completion of a telephonic lifestyle management program involves a series of calls with a wellness coach over a six-month period.

# Healthy Living Program

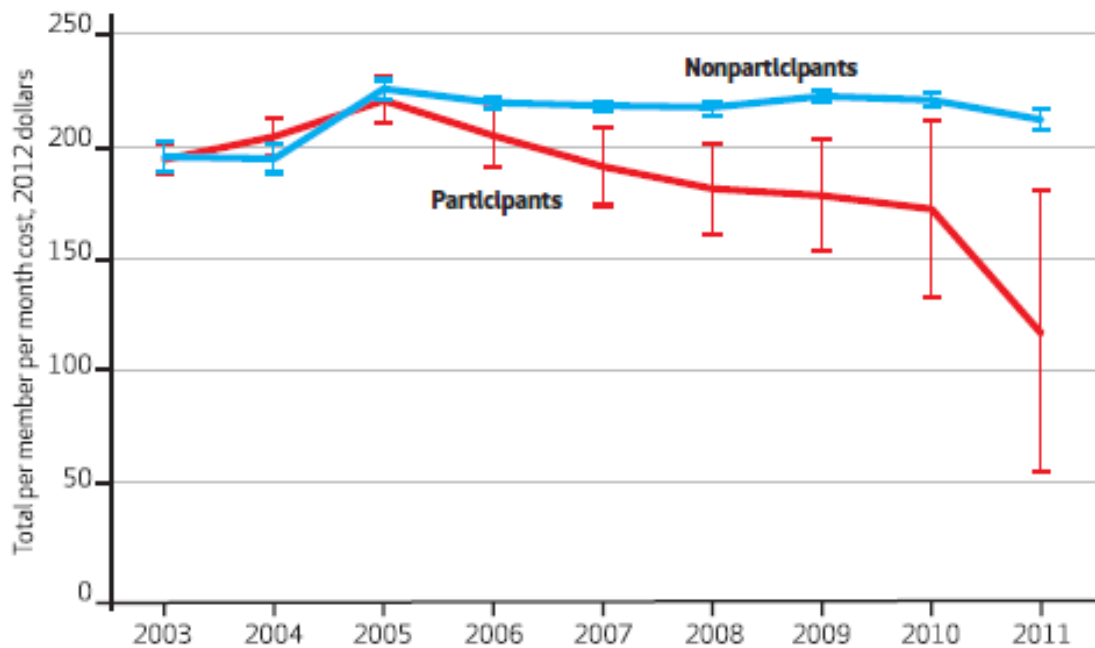
---

**THE PEPSICO PROGRAM** PepsiCo introduced in 2003 what evolved into their Healthy Living program. Healthy Living is a wellness program made up of numerous components that include health risk assessments, on-site wellness events, lifestyle management, disease management, complex care management, a 24/7 nurse advice line, and maternity management. All PepsiCo employ-

# 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.

**\$1.46**  
**Return on investment**  
 Together, the lifestyle management and disease management components of Healthy Living returned an average of \$1.46 for every dollar invested.

## 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."

# Media Coverage

http://www.hreonline.com/HRE/view/story.jhtr hreonline.com

SEE FOR YOURSELF. LEARN MORE >

Sponsored Content By: vsp Vision Care

**Human Resource Executive Online**

SUBSCRIBE E-NEWSLETTERS AWARDS COLUMNS MULTIMEDIA CONFERENCES ABOUT US RESEARCH

BENEFITS EMPLOYMENT LAW HR LEADERSHIP HR TECHNOLOGY TALENT MANAGEMENT

SEARCH | Advanced Search

**Blog** A Few Industries Retaining DB Plans **3D** A 3-D View **Avoiding Depression's Devastation**

## Study: PepsiCo's Wellness Program Falls Flat

**A new study of the soft-drink giant's wellness program finds it costs more money than it saves in reduced healthcare costs, but experts say such programs can still provide value apart from financial considerations.**

By Carol Patton  
Tuesday, January 21, 2014

Print Email To Editor Reprints

For years, companies have been trying to determine the return on investment of their wellness programs with one particular question in mind: Are they worth the money and effort?

According to results from a 2013 PepsiCo study conducted by the Santa Monica, Calif.-based RAND Corp. and involving more than 67,000 employees enrolled in the company's "Healthy Living" program -- specifically initiatives that encourage workers to adopt healthier lifestyles -- actually cost more money than they save the company.

But that's still no reason for PepsiCo or other employers to abandon their wellness programs, because they're

**Most Popular:**

**Viewed Shared**

- Oracle and SAP Encircle Their On-Premise Base
- Banning Wearable Tech at Work?
- What to Do about E-Cigarettes
- Establishing a Credible Employee-Engagement Survey
- Social-Media Storytelling
- HR's 2014 Agenda

SEE FOR YOURSELF.

Links Desktop 10:41 AM 9/7/2014



# BJC Healthcare Study

**WELLNESS PROGRAMS**

By Gautam Gowrisankaran, Karen Norberg, Steven Kymes, Michael E. Chernew, Dustin Stwalley, Leah Kemper, and William Peck

## A Hospital System's Wellness Program Linked To Health Plan Enrollment Cut Hospitalizations But Not Overall Costs

**DOI:** 10.1377/hlthaff.2012.0090  
HEALTH AFFAIRS 32,  
NO. 3 (2013): 477-485  
©2013 Project HOPE—  
The People-to-People Health  
Foundation, Inc.

**ABSTRACT** Many policy makers believe that health status would be improved and health care spending reduced if people managed their health better. This study examined the effectiveness of a program put in place by BJC HealthCare, a hospital system based in St. Louis, Missouri, that tied employees' eligibility to participate in the system's most

**Gautam Gowrisankaran** (gowrisankaran@eller.arizona.edu) is a professor of economics at the University of Arizona, in Tucson.

**Karen Norberg** is a medical research fellow with the

8.37 x 10.87 in

1:08 PM  
2/22/2014



## BJC Insurance-Based Wellness Incentive Program

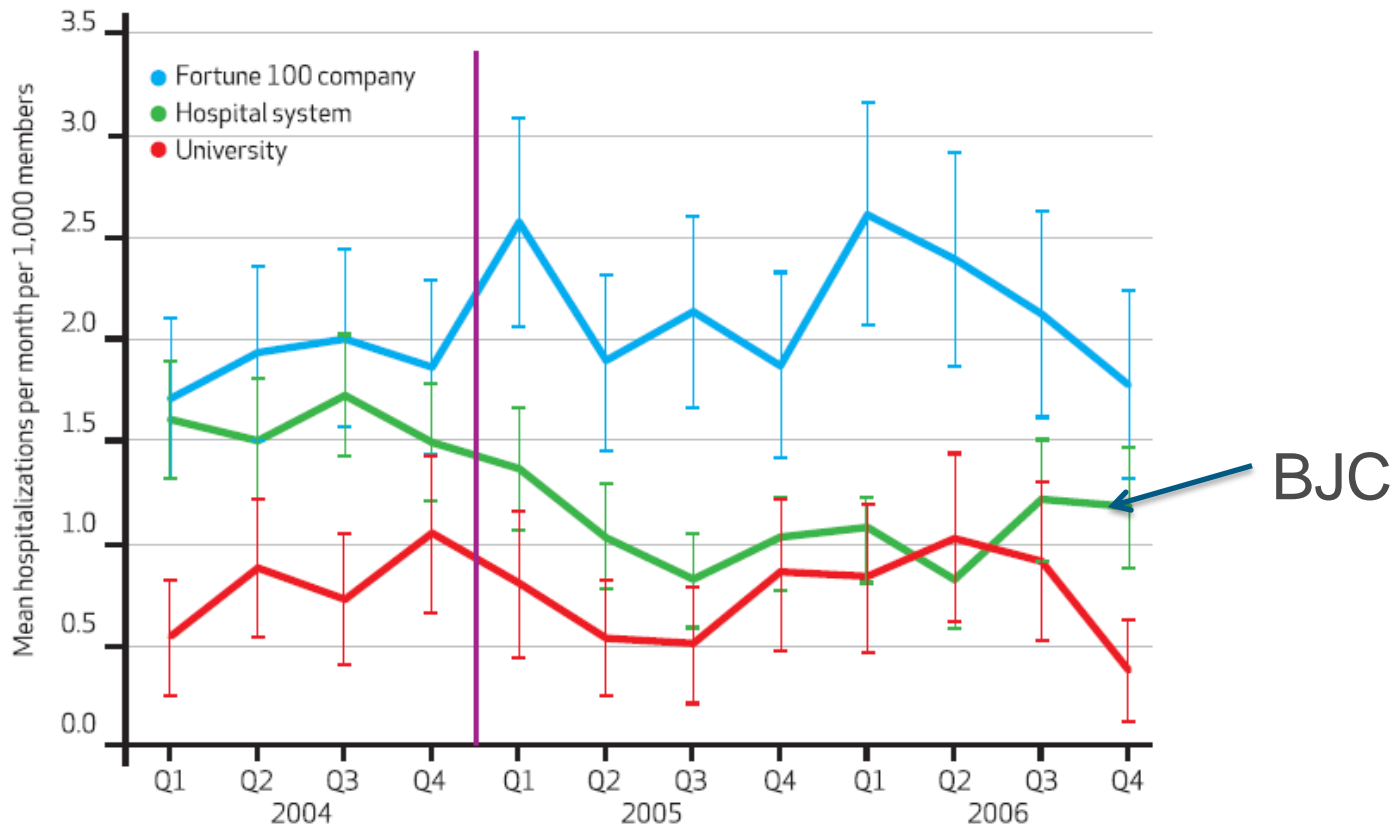
---

The new program required that starting in January 2005, employees wanting to enroll in the most generous “Gold” plan needed to complete a web-based health risk assessment; sign a health pledge promising to maintain a healthy diet and exercise regularly; report their smoking status; and, for smokers, enroll in a smoking cessation program. If the employees did not complete these activities, they were prohibited from enrolling in the Gold plan.

# BJC Results

## EXHIBIT 2

Time Path Of Targeted Hospitalizations: Mean Inpatient Hospitalizations For A Targeted Condition At The Hospital System And Comparison Groups



BJC

# Media Report

The screenshot shows the Becker's Hospital Review website. The top navigation bar includes links for Hospital Review, ASC Review, Spine Review, Infection Control, CIO, and CFO, along with a phone number (1.800.417.2035) and social media icons. The main header features the 'BECKER'S Hospital Review' logo and a '2014 ASHPE WINNER' badge for 'Gold Award Best E-Newsletter'. A HealthStream advertisement asks 'Does your staff deliver an excellent experience to every patient, every time?' and offers a 'FREE E-Weeklies' sign-up. Below the navigation menu, the article 'Study: BJC HealthCare's Wellness Program Cut Hospitalizations But Not Costs' is featured, written by Molly Gamble on March 05, 2013. The article text states: 'A new study in *Health Affairs* examined an employee wellness program at St. Louis-based BJC HealthCare, finding that it decreased hospitalizations for certain targeted conditions but did not save money for the employer in the short-term. BJC HealthCare introduced its insurance-based wellness incentive program for employees and their dependents in 2005. It tied employees' eligibility to participate in the system's most generous "Gold" health plan to their participation in a wellness program, which included completing a health assessment, maintaining a healthy diet, exercising regularly and reporting their smoking status or enrolling in a cessation program.' The article has one comment and social sharing options for Twitter and LinkedIn. A search bar and a 'Let's Improve the Patient Experience Together' banner are also visible. The Windows taskbar at the bottom shows the date as 9/7/2014 and time as 10:44 AM.

# 98% of Large Businesses Offer Wellness!

**TAKE  
5**



## WELLNESS EMBRACED

EMPLOYERS CONTINUE TO EMBRACE THE USE OF WELLNESS PROGRAMS as a strategy to create a healthier workforce and lower their health care costs over time.

A whopping 98% of large firms (with 200 or more workers) and 73% of smaller firms (with less than 200 workers) are offering at least one wellness program this year, according to a study by the Kaiser Family Foundation and the Health Research & Educational Trust.

"Wellness is a cornerstone to good health and lower cost overall," says Maulik Joshi, president of the Health Research & Educational Trust and senior vice president of research at the American Hospital Association. "Since 2009, more firms both large and small are offering wellness programs, and more firms are offering incentives to encourage wellness."

Under the Affordable Care Act, employers may increase an employee's premium contribution up to 30% of the cost of the health plan for not completing wellness programs, as long as the wellness program is reasonably designed and there are alternatives for workers who cannot meet the standard.

Companies seem fairly pleased with the impact that the incentives are having. At least 14% of all firms that provide incentives to participate in a wellness program said the incentives are very effective, and 36% said they are somewhat effective, the survey found.

Joshi added, "Employers are moving toward programs that raise the bar for everyone in terms of health."

The most common wellness initiatives are:

- flu shots (87% of large firms)
- employee assistance programs (79%)
- online resources for healthy living (77%)
- smoking cessation programs (64%)
- gym membership discounts or on-site exercise facilities (64%)

# Hold Your Horses!

---



## Wellness gone wrong

When putting together a wellness plan, pay attention to how the EEOC defines liability

BY KATHLEEN KOSTER

In order to avoid costly litigation, employers need to carefully design their wellness program — especially when they reward participants with incentives and discounts on their medical coverage. The EEOC recently sued a Wisconsin employer, claiming the penalty the employer imposed for non-participation in its program was too significant. The EEOC also determined the wellness requirements were involuntary under the Americans with Disabilities Act.

Employers and their advisers should pay careful attention to how the EEOC defines liability in this case, *EEOC v. Orion Energy Systems*. It is a reminder to stay in compliance with the Affordable Care Act's rules for wellness as well.

"In terms of staying compliant under the ACA, the ADA and HIPAA to protect employees' privacy, the more you focus on giv-

ing people multiple opportunities to participate, the more attractive your program is and the easier it is to stay compliant," says Adam Cox, director of wellness, Heffernan Insurance Brokerage.

He advises employers to watch their program's design and semantics. In other words, don't suggest to workers that activities are mandatory in order to receive a premium discount.

In the EEOC case, the employer paid 100% of the health insurance premiums for employees who participated in its "voluntary" wellness program. If the employee chose not to participate, the employee paid 100% of the premiums. The program contained two components. First, employees completed a health risk assessment, and second, a "fitness" component involved completing a medical history questionnaire and exercising on the employer's range of

motion machines. The complaint also alleges that there was a \$50 "penalty" for not participating in the fitness component of the wellness program.

This wellness program only offered one option for participation: the in-office motion machines. Not only could some employees have been medically unable to use these machines, but they also may not have been available to all shifts.

### ACA requirements

Under the ACA, health contingent programs can come in two forms: "outcomes based" and "activity-only." Activity-only wellness programs require individuals to perform or complete an activity related to a health factor in order to obtain a reward, although a particular outcome is not required. In such programs, an employer must provide a reasonable alternative standard for obtaining the reward to individuals for whom it would



# Challenges to Workplace Programs

By Jill R. Horwitz, Brenna D. Kelly, and John E. DiNardo

DOI: 10.1377/hlthaff.2012.0683  
HEALTH AFFAIRS 32,  
NO. 3 (2013): 468-476  
©2013 Project HOPE—  
The People-to-People Health  
Foundation, Inc.

## Wellness Incentives In The Workplace: Cost Savings Through Cost Shifting To Unhealthy Workers

**Jill R. Horwitz** (Horwitz@law.ucla.edu) is a professor of law at the University of California, Los Angeles, School of Law.

**Brenna D. Kelly** is an associate in the New York office of the law firm Ropes and Gray.

**John E. DiNardo** is a professor of economics and public policy at the University of Michigan, in Ann Arbor.

**ABSTRACT** The Affordable Care Act encourages workplace wellness programs, chiefly by promoting programs that reward employees for changing health-related behavior or improving measurable health outcomes. Recognizing the risk that unhealthy employees might be punished rather than helped by such programs, the act also forbids health-based discrimination. We reviewed results of randomized controlled trials and identified challenges for workplace wellness programs to function as the act intends. For example, research results raise doubts that employees with health risk factors, such as obesity and tobacco use, spend more on medical care than others. Such groups may



# Goetzel Response to DiNardo et al.

.....

AT THE INTERSECTION OF HEALTH, HEALTH CARE, AND POLICY

SEARCH Advanced Search »

# HealthAffairs Blog

FOLLOW US      

HOME | ABOUT | ARCHIVE | TOPICS | THEME ISSUES | BRIEFS | BLOGS | SUBSCRIBE | ALERTS | MY ACCOUNT

HA BLOG ARCHIVES CATEGORIES AUTHORS BLOGROLL ABOUT THE BLOG TERMS OF USE

[Blog Home](#)

**Author Archive**

**Structuring Legal, Ethical, And Practical Workplace Health Incentives: A Reply to Horwitz, Kelly, And DiNardo**

April 23rd, 2013



by **Ron Goetzel**

 Tweet 22  Recommend 6

This commentary is in response to the March 5, 2013 *Health Affairs* article, "[Wellness Incentives in the Workplace: Cost Savings through Cost Shifting to Unhealthy Lifestyles](#)." In that article, Jill Horwitz and

 **RSS**

Click [here](#) to email us a new post.

Visit HealthAffairs [GrantWatch Blog](#)

**Search Blog**

**Subscribe to Health Affairs**



**Email Notifications**

# Penn State Controversy

---

The New York Times

September 14, 2013

## On Campus, a Faculty Uprising Over Personal Data

By NATASHA SINGER

IMPROVING health while holding down health care costs is the kind of having-your-cake-and-eating-it combination that most people can get behind. In fact, both ideas are embedded in the Obama administration's Affordable Care Act. But an uprising among faculty members at Pennsylvania State University over a new employee wellness plan is challenging at least some of the methods designed to achieve those aims.

Penn State administrators quietly introduced the plan, called "Take Care of Your Health," this summer in the deadest part of the academic calendar. But that didn't prevent some conscientious objectors from organizing a protest online and on their campuses, culminating last week in an emotionally charged faculty senate meeting. The plan, they argued, is coercive, punitive and invades university employees' privacy.

The plan requires nonunion employees, like professors and clerical staff members, to visit their doctors for a checkup, undergo several biometric tests and submit to an extensive online health risk questionnaire that asks, among other questions, whether they have recently had problems with a co-worker, a supervisor or a divorce. If they don't fill out the form, \$100 a month will be deducted from their pay for noncompliance. Employees who do participate will receive detailed feedback on how to address their health issues.

# Latest Word from EEOC

The screenshot shows a web browser window with the URL <http://www.modernhealthcare.com/article/201504>. The page features a navigation bar with categories like 'Opinion & Editorial', 'Research', and 'Interactive Data Products'. The main content area displays an article titled 'Feds OK financial incentives for wellness programs' by Modern Healthcare, dated April 18, 2015. The article text discusses the U.S. Equal Employment Opportunity Commission's decision on financial incentives and safeguards for wellness programs. To the right of the article are two advertisements: one for '100 MOST INFLUENTIAL PEOPLE IN HEALTHCARE' and another for 'HEALTHCARE MARKETING IMPACT AWARDS'. The Windows taskbar at the bottom shows the time as 10:13 AM on 4/21/2015.

Advertisement

THE ROAD TO **BETTER, SAFER CARE** REGISTER TODAY! GOLD SPONSOR STANLEY Healthcare

Modern Healthcare

Opinion & Editorial Research Interactive Data Products Education & Events Awards & Recognition Jobs

My account

Search Modern Healthcare

This Week's Issue

- Subscribe
- Advertise

Providers Insurance Government Finance Technology Safety & Quality People

Home > Government > Politics & Policy

Twitter Facebook LinkedIn Google+ YouTube Email Print

## Feds OK financial incentives for wellness programs

By Modern Healthcare | April 18, 2015

In a victory for business groups, the U.S. Equal Employment Opportunity Commission said last week that employers can continue to use substantial financial penalties and rewards to nudge employees to participate in workplace wellness programs.

But the EEOC also proposed some safeguards for employees, including limits on the size of financial incentives, confidentiality of their medical information and prohibitions against firing workers who decline to participate in wellness programs or denying them access to the company health plan.

Financial incentives can range as high as 30% of the cost of premiums for employee-only coverage, the commission said. The proposed regulations are now open for public comment for 60 days.

Businesses say programs requiring workers to complete a health-risk assessment help them reduce their employee health benefit costs and improve their workers'

Advertisement

100 MOST INFLUENTIAL PEOPLE IN HEALTHCARE

NOMINATE THE LEADERS YOU WANT TO SEE MAKE OUR 2015 LIST

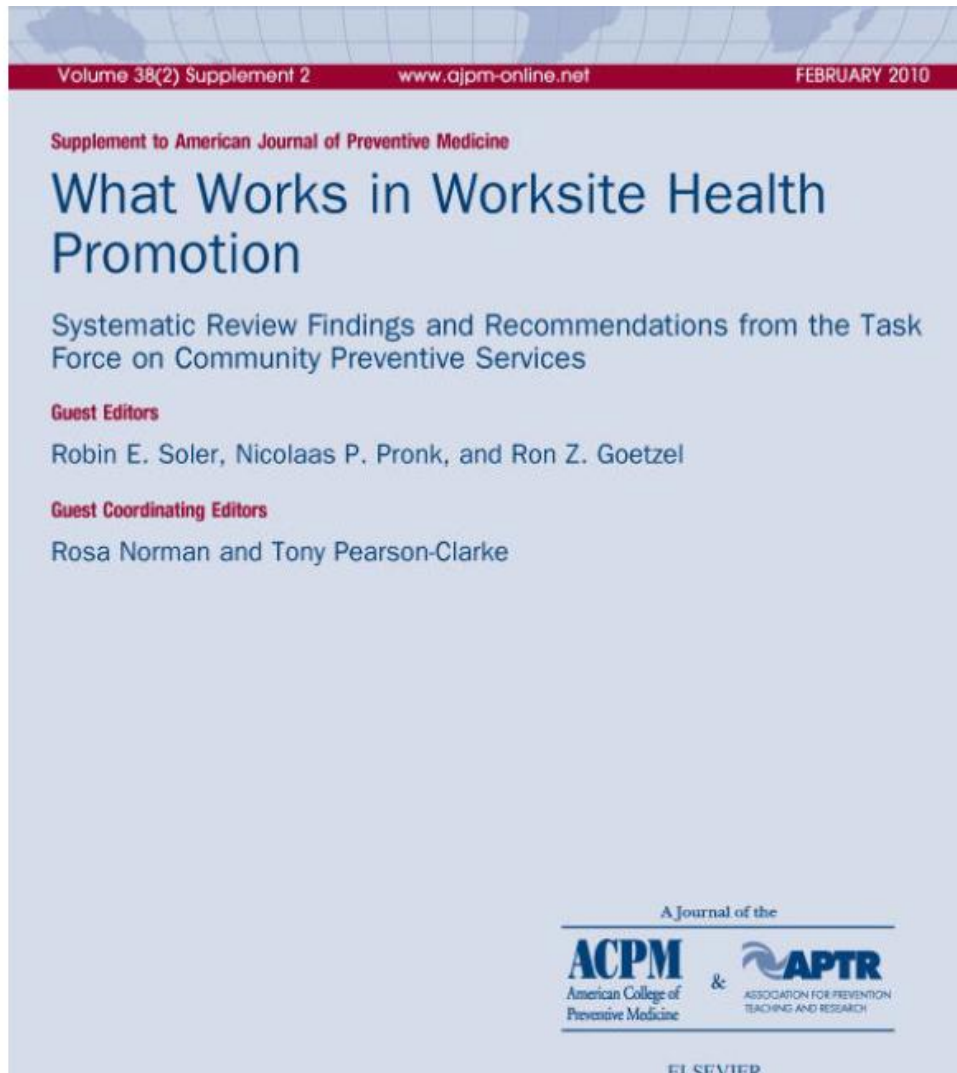
Advertisement

HEALTHCARE MARKETING IMPACT AWARDS

Links Desktop

10:13 AM 4/21/2015

# Worksite Health Promotion Works! (When Done Right)



# CDC Community Guide to Preventive Services Review – AJPM, February 2010

86 Studies Reviewed

## 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

# CDC Community Guide Obesity Review

Guide to Community Preventive Services

## The Effectiveness of Worksite Nutrition and Physical Activity Interventions for Controlling Employee Overweight and Obesity A Systematic Review

Laurie M. Anderson, PhD, MPH, Toby A. Quinn, MPA, Karen Glanz, PhD, MPH, Gilbert Ramirez, DrPH, Leila C. Kahwati, MD, MPH, Donna B. Johnson, PhD, Leigh Ramsey Buchanan, PhD, W. Roodly Archer, PhD, Sajal Chattopadhyay, PhD, Geetika P. Kalra, MPA, David L. Katz, MD, Task Force on Community Preventive Services

This review found that worksite nutrition and physical activity programs achieve modest improvements in employee weight status at the 6–12-month follow-up. A pooled effect estimate of  $-2.8$  pounds (95% CI= $-4.6, -1.0$ ) was found based on nine RCTs, and a decrease in BMI of  $-0.5$  (95% CI= $-0.8, -0.2$ ) was found based on six RCTs. The findings appear to be applicable to both male and female employees, across a range of worksite settings.

# SUMMARY RESULTS AND TEAM CONSENSUS

---

Outcome	Body of Evidence	Consistent Results	Magnitude of Effect	Finding
<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.



BLOOMBERG SCHOOL  
of PUBLIC HEALTH

**TRUVEN**  
HEALTH ANALYTICS

# 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

# Baxter et al., Review

---

Literature Review: Financial Analysis

## The Relationship Between Return on Investment and Quality of Study Methodology in Workplace Health Promotion Programs

Siyon Baxter, BNRN (Hons); Kristy Sanderson, BSc(Psych), PhD; Alison J. Venn, BSc (Hons), PhD; C. Leigh Blizzard, BEc (Hons), MSc, MEd, PhD; Andrew J. Palmer, BMedSci, MBBS

### Abstract

**Objective.** To determine the relationship between return on investment (ROI) and quality of study methodology in workplace health promotion programs.

**Data Source.** Data were obtained through a systematic literature search of National Health Service Economic Evaluation Database (NHS EED), Database of Abstracts of Reviews of Effects (DARE), Health Technology Database (HTA), Cost Effectiveness Analysis (CEA) Registry, EconLit, PubMed, Embase, Wiley, and Scopus.

**Study Inclusion and Exclusion Criteria.** Included were articles written in English or German reporting cost(s) and benefit(s) and single or multicomponent health promotion programs on working adults. Return-to-work and workplace injury prevention studies were excluded.

**Data Extraction.** Methodological quality was graded using British Medical Journal Economic

### INTRODUCTION

Workplace health promotion (WHP) encompasses health promoting and illness prevention activities that are available in the workplace. Activities can range from single, one-off interventions (e.g., influenza vaccination) to multicomponent, multilevel health interventions. Economic evalu-

# Criteria for Economic Evaluation of Interventions

---

**Table 2**  
**Thirty-Six-Item *British Medical Journal* Economic Evaluation Working Party  
(*BMJ* checklist)\***

---

## Study design

1. Was the research question stated?
2. Was the economic importance of the research question stated?
3. Was/were the viewpoint(s) of the analysis clearly stated and justified?
4. Was a rationale reported for the choice of the alternative programmes or interventions compared?
5. Were the alternatives being compared clearly described?
6. Was the form of economic evaluation stated?
7. Was the choice of form of economic evaluation justified in relation to the questions addressed?

\* From *Systematic Reviews: CRD's Guidance for Undertaking Reviews in Health Care*. 3rd ed. York, UK: Centre for Reviews and Dissemination; 2009:210–211. Available at: [http://www.york.ac.uk/inst/crd/index\\_guidance.htm](http://www.york.ac.uk/inst/crd/index_guidance.htm). Reproduced with permission from CRD, York, UK.

# Criteria for Economic Evaluation of Interventions

## Data collection

8. Was/were the source(s) of effectiveness estimates used stated?
9. Were details of the design and results of the effectiveness study given (if based on a single study)?
10. Were details of the methods of synthesis or meta-analysis of estimates given (if based on an overview of a number of effectiveness studies)?
11. Were the primary outcome measure(s) for the economic evaluation clearly stated?
12. Were the methods used to value health states and other benefits stated?
13. Were the details of the subjects from whom valuations were obtained given?
14. Were productivity changes (if included) reported separately?
15. Was the relevance of productivity changes to the study question discussed?
16. Were quantities of resources reported separately from their unit cost?
17. Were the methods for the estimation of quantities and unit costs described?
18. Were currency and price data recorded?
19. Were details of price adjustments for inflation or currency conversion given?
20. Were details of any model used given?
21. Was there a justification for the choice of model used and the key parameters on which it was based?

# Criteria for Economic Evaluation of Interventions

## Analysis and interpretation of results

22. Was time horizon of cost and benefits stated?
23. Was the discount rate stated?
24. Was the choice of rate justified?
25. Was an explanation given if cost or benefits were not discounted?
26. Were the details of statistical test(s) and confidence intervals given for stochastic data?
27. Was the approach to sensitivity analysis described?
28. Was the choice of variables for sensitivity analysis justified?
29. Were the ranges over which the parameters were varied stated?
30. Were relevant alternatives compared? (i.e., Were appropriate comparisons made when conducting the incremental analysis?)
31. Was an incremental analysis reported?
32. Were major outcomes presented in a disaggregated as well as aggregated form?
33. Was the answer to the study question given?
34. Did conclusions follow from the data reported?
35. Were conclusions accompanied by the appropriate caveats?
36. Were generalisability issues addressed?

# Newest ROI Literature Review

Relationship Between Return on Investment and Quality of Study Methodology in Workplace Health Promotion Programs, *AJHP*, July/August 2014.

- Fifty-one studies (61 intervention arms) published between 1984 and 2012 included 261,901 participants and 122,242 controls from nine industry types across 12 countries.
- Overall weighted ROI was **1.38 : 1.00**, which indicated a 138% return on investment.
- When accounting for methodological quality, an inverse relationship to ROI was found.
- Randomized control trials (RCTs) (n = 12) exhibited negative ROI,  $-0.22 \pm 2.41$  (-.27 to -.16).
- **Conclusion.** Overall, mean weighted ROI in workplace health promotion demonstrated a positive ROI.



# RCT Studies

Intervention  
Period

Sample Size

Intervention  
Type

Table 3  
Study Characteristics

Studies (N = 51)	Year	Study Design	Origin	Duration (years)	Organization Size*	Industry	Participant (no.)	Control (no.)	Intervention	Currency	Time Value	ROI	BCR
Categorized high quality (N = 15); quality score >75%													
Traditional health promotion programs													
Groeneveld et al. <sup>66</sup>	2011	RCT	Netherlands	0.5	NS	Construction	293	280	Wt, Ind	EUR	2008	-0.24†	0.76
Proper et al. <sup>68</sup>	2004	RCT	Netherlands	0.75	PS	Local Gov.	97	167	N, PA, Ind	EUR	NS	-0.71‡	0.29
Meenan et al. <sup>67</sup>	2010	RCT	USA	2	Large	Hospitality	3346	3612	HRA, N, Wt, Ind	USD	2008	-0.74†	0.26
McEachan et al. <sup>39§</sup>	2011	RCT	UK	0.25	NS	Various	662	598	PA	GBP	NS	-4.30‡	-3.30
Greene et al. <sup>65§</sup>	2009	Model	USA	0.5	Large	El-Gas-Oil-W	499	499	CM, Dx	USD	2007	3.42‡	4.42
Naydeck et al. <sup>78</sup>	2008	Model	USA	4	Large+	Insurance	1892	1892	HRA, Sm, N, Wt, PA, MH, CM, Dx	USD	2005	0.27¶	1.27
Taimela et al. <sup>69§</sup>	2008	RCT	Finland	1	Large	Construction	134	138	HRA, Ind	EUR	2004	3.47‡	4.47
Shi et al. <sup>35</sup>	1993	Non-exp	USA	1.5	Large+	Electricity-Gas-Oil-Water	412	412#	HRA	USD	1988	1.49†	2.49
							301	301#	+SH			1.37†	2.37
							295	295#	+Sm, N, Wt, R, PA, MH, CM			3.07†	4.07
							180	180#	+Dx, Ind			1.43†	2.43
Medical/dental programs													
At'kov et al. <sup>42§</sup>	2011	Quasi	Russia	0.67	Large+	Transport	701	630	Vacc	EUR	2006	0.40‡	1.40
Bridges et al. <sup>51§</sup>	2001	RCT	USA	0.42	NS	Manufacturing	587	604	Vacc	USD	1999	-0.45†	0.55
Cohen et al. <sup>41§</sup>	2003	RCT	Australia	0.12	Large+	Manufacturing	280	270	Vacc	AUD	NS	0.92‡	1.92

ROI indicates return on investment (calculated); BCR, benefit/cost ratio (calculated); RCT, randomized control trial; Model, modeled; Non-exp, nonexperimental (i.e., pre-post only, a before/after comparison group); Quasi, quasi-experimental (i.e., a nonrandomized comparison group); PS, public service; HRA, health risk assessment; Sm, smoking; PA, physical activity; MH, stress, resilience, life management, employee assistance program (EAP); Psych, psych distress, crisis management, anxiety, depression; Ind, individualized, personalized care; Vacc, vaccination; Screen, screening, health screening (i.e., cancer, mammogram, glucose, etc.); Dx, disease management, case management; Cog, cognitive; CM, cardiometabolic (changes in blood pressure, lipids, and cholesterol); N, nutrition; Wt, weight management; Dental, dental (light = 1 visit/7 yr, medium = 2-4 visits/7 yr, heavy = 5-6 visits/7 yr); R, risky behavior, substance abuse; SF, sleep and fatigue; Tmt, treatment either in a clinic or center using health professionals (doctors or nurses); SH, self-help resources; NS, not stated; USD, U.S. dollar; EUR, Euro; GBP, British pound; AUD, Australian dollar; FIM, Finnish markka; and CAD, Canadian dollar.

Vaccine Interventions

# Quasi-Experimental and Modeling Studies

## Categorized moderate quality (N = 14); quality score 50%–75%

### Traditional health promotion programs

Goetzel et al. <sup>63§</sup>	2005	Model	USA	10	Large+	Electricity-Gas-Oil-Water	25,828	25,828	HRA, CM	USD	2001	0.76¶	1.76
Baker et al. <sup>38</sup>	2008	Model	USA	1	Various	Various	890	890	HRA, N, Wt, PA, Ind	USD	2007	0.17†	1.17
Ozminkowski et al. <sup>36</sup>	1999	Quasi	USA	0.97	Large+	Finance	11,194	11,644	HRA, Dx, Ind	USD	1996	3.56¶	4.56
Mills et al. <sup>61</sup>	2007	Quasi	UK	1	NS	Manufacturing	618	2500	HRA, N, PA, MH, SF, Ind	GBP	NS	27.71‡	28.71
Bertera et al. <sup>49</sup>	1990	Quasi	USA	2	Large+	Manufacturing	29,315	14,573	HRA, Sm, N, Wt, PA, MH, Psych, CM, Dental	USD	1986	0.22‡	1.22
Nyman et al. <sup>34§</sup>	2012	Quasi	USA	3	Large+	Education	6413**	6413**	HRA, PA, Dx	USD	2008	0.46†	1.46
Aldana et al. <sup>76</sup>	1993	Quasi	USA	2	PS	Local Gov	340	340	HRA, CM, Screen, Ind	USD	1990	2.60¶	3.60
Schwartz et al. <sup>33§</sup>	2010	Model	USA	1	Large+	Insurance	413	360	Dx	USD	2008	3.20¶	4.20
Golaszewski et al. <sup>64</sup>	1992	Model	USA	14	Large+	Insurance	NS	NS	HRA, Wt, PA, MH, CM, Dx	USD	1986	2.10†	3.10

## Categorized low quality (N = 22); quality score <50%

### Traditional health promotion programs

Footo et al. <sup>84</sup>	1991	Quasi	USA	3	NS	Manufacturing	337	169	CM			1.50	2.50
							367		+Follow-up	USD	1982	0.89	1.89
							183		+Tmt			1.72	2.72
Henke et al. <sup>37</sup>	2011	Model	USA	6	Large+	Manufacturing	31,823	31823†	HRA, Sm, N, Wt, PA, MH, CM, Screen, Dx, Ind	USD	2009	2.92	3.92

Johnson & Johnson Study

# Dow ROI Study – Moderate Quality

---

JOEM • Volume 47, Number 8, August 2005

759

CME Available for this Article at [ACOEM.org](http://ACOEM.org)

## Estimating the Return-on-Investment From Changes in Employee Health Risks on The Dow Chemical Company's Health Care Costs

**Ron Z. Goetzel, PhD**  
**Ronald J. Ozminkowski, PhD**  
**Catherine M. Baase, MD, FAAFP, FACOEM**  
**Gary M. Billotti, MS**

### Learning Objectives

- Recall the risk factors evaluated in the company's health assessment program, and the effects of advancing age over the 10-year study period on employees' risk factor profiles.
- Relate the degree of risk reduction to the company's health care expenditures under three scenarios: a large and a modest impact of risk reduction efforts on health risk, and a "break-even" condition in which the company saves the same amount it invests.
- Conclude whether health risk reduction efforts are worthwhile to companies in terms of the financial pay back.

**M**edical directors often need to build a business case for investing in health promotion as part of a comprehensive health management strategy. Their business case can be greatly strengthened if it includes a projected return-on-investment (ROI). How to best formulate a compelling ROI analysis has been a challenge, and several investigators have commented on the topic.<sup>1-6</sup> This article illustrates an approach used by staff at The Dow Chemical Company (Dow) to develop a credible ROI estimate as a component of their a business case for ongoing investment in the health and well-being of Dow's employees.

# Johnson & Johnson – “Low Quality Study”

## WELLNESS

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

DOI: 10.1377/hlthaff.2010.0806  
HEALTH AFFAIRS 30,  
NO. 3 (2011): 490-499  
©2011 Project HOPE—  
The People-to-People Health  
Foundation, Inc.

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

**Rachel M. Henke** (rachel.henke@thomsonreuters.com) is a senior research leader at Thomson Reuters, in Cambridge, Massachusetts.

**Ron Z. Goetzel** is vice president of consulting and applied research at Thomson Reuters, in Washington, D.C. He also directs the Institute for Health and Productivity Studies at Emory University, in Atlanta, Georgia.

**Janice McHugh** is manager of integrated health services at Johnson & Johnson, in New Brunswick, New Jersey.

**Fik Isaac** is executive director of global health services at Johnson & Johnson and chief medical officer, Wellness &

**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.

# Michael O'Donnell Analysis of ROI Review

—AJHP, Jan/Feb 2015, 29:3, v-viii

---



## *Editor's Notes*

---

### **What Is the ROI for Workplace Health Promotion? It Really Does Depend, and That's the Point**

*A recent systematic review of the literature on the financial impact of workplace health promotion found that 46 of 47 programs saved money, 41 saved more than they cost, and that the returns on investment varied greatly based on the quality of the study methodology, year of publication, sample size, scope of the program, direct or indirect measurement of savings and costs, and several other factors. A close examination of the methodology of the single study that reported net financial loss illustrates the complexity of drawing conclusions from summaries of the literature without also examining the details. Next steps in advancing studies of the financial impact of workplace health promotion programs include developing a scale to measure methodology quality that is appropriate for workplace health promotion programs, and engaging independent third parties to*

measured claims costs, rather than imputing them based on normal and customary charges or other methods. The authors reported 68 different mean ROIs to reflect weighting or unweighting of the sample, methodology quality rating, study design, location of the employer, year of publication, sample size, intervention focus, scope of the program, method to measure differences, source of the ROI calculation, direct or indirect measure of savings and costs, and method used to determine costs.

The responses to the article were widely divergent but not surprising. Scientists recognized its thoughtful structure and thorough nature. Critics of the field were delighted to see that the ROI among the highest-quality RCTs was less than 1.0 (.78), adding fuel to the flames of their claims that workplace health promotion programs do not save money. Blind loyalists to the field were distressed that any of the reported ROIs were lower than the ROI (3.27 from medical costs and 2.73 from absenteeism) in the widely cited meta-

# Criteria for Evaluating Study Design

5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, 1 = Poor

---

- Randomized controlled trial (RCT) (experimental design) = 5
- Well-designed controlled trial without randomization (quasi-experimental design with adjustment for confounders) = 5
- Well-designed cohort or case-control study (quasi- and pre-experimental designs, with adjustment for confounders) = 4
- Multiple time series, correlation studies = 3
- Descriptive analysis – posttest only or pre-post = 2
- Modeling study with explicit assumptions = 2
- Expert opinion = 1





**CULTURE OF  
HEALTH!**

## Promoting Healthy Workplaces

# Case Studies – Companies That Do It “Right”

*Johnson & Johnson*



**citibank**



**L.L.Bean**<sup>®</sup>



# Best Practice Companies

**Table 4: Organizations Visited**

<b>Organization</b>	<b>Headquarters</b>	<b>Employees</b>	<b>Industry Type</b>
<b>Citibank</b>	New York, NY	259,000	Banking
<b>Dell, Inc.</b>	Round Rock, TX	109,000	Manufacturing software development
<b>Graco</b>	Minneapolis, MN	2,600	Manufacturing
<b>Johnson &amp; Johnson</b>	New Brunswick, NJ	118,000	Medical equipment, pharmaceutical
<b>Lincoln Industries</b>	Lincoln, NE	600	Manufacturing
<b>LL Bean</b>	Freeport, ME	5,500	Retail
<b>Next Jump</b>	New York, NY	200	eCommerce
<b>Turck</b>	Minneapolis, MN	3,200	Manufacturing
<b>USAA</b>	San Antonio, TX	25,000	Financial services

# Citibank Study

## THE **S**CIENCE OF HEALTH PROMOTION

*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. Goetzel, 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](http://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*

According 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

# Dell Study

*Financial Analysis*

## An Evaluation of the Well at Dell Health Management Program: Health Risk Change and Financial Return on Investment

*Shirley Musich, PhD; Tre' McCalister, EdD; Sara Wang, PhD; Kevin Hawkins, PhD*

### **Abstract**

**Purpose.** To investigate the effectiveness of the Well at Dell comprehensive health management program in delivering health care and productivity cost savings relative to program investment (i.e., return on investment).

**Design.** A quasi-experimental design was used to quantify the financial impact of the program and nonexperimental pre-post design to evaluate change in health risks.

**Setting.** Ongoing worksite health management program implemented across multiple U.S. locations.

**Subjects.** Subjects were 24,651 employees with continuous medical enrollment in 2010–2011 who were eligible for 2011 health management programming.

**Intervention.** Incentive-driven, outcomes-based multicomponent corporate health management program including health risk appraisal (HRA)/wellness, lifestyle management, and disease management coaching programs.

**Measures.** Medical, pharmacy, and short-term disability pre/post expenditure trends adjusted for demographics, health status, and baseline costs. Self-reported health risks from repeat HRA completers.

**Analysis.** Propensity score-weighted and multivariate regression-adjusted comparison of baseline to post trends in health care expenditures and productivity costs for program participants and nonparticipants (i.e., difference in difference) relative to programmatic investment.

**Results.** The Well at Dell program achieved an overall return on investment of 2.48 in 2011. Most of the savings were realized from the HRA/wellness component of the program. Cost savings

### **PURPOSE**

Employers offer health management programs as a defined strategy to improve employee health, mitigate rising health care costs, enhance employee morale and satisfaction, and increase productivity.<sup>1</sup> A 2013 national employer survey by the Kaiser Foundation found that 77% of employers offering health care benefits also sponsored at least one wellness program.<sup>2</sup> Given their popularity, and the advent of lower-cost online wellness programs, health management programs have increasingly migrated to midsized and small employers.<sup>3</sup>

The value of health management programs to employers has been dem-



# What Is Needed to Achieve Success?

1. Leadership commitment
2. Specific goals and expectations
3. Healthy company culture
4. Employee driven program design
5. Excellent communication
6. Smart incentives
7. Effective screening and triage
8. State-of-the-art interventions
9. Effective implementation
10. Measurement and evaluation

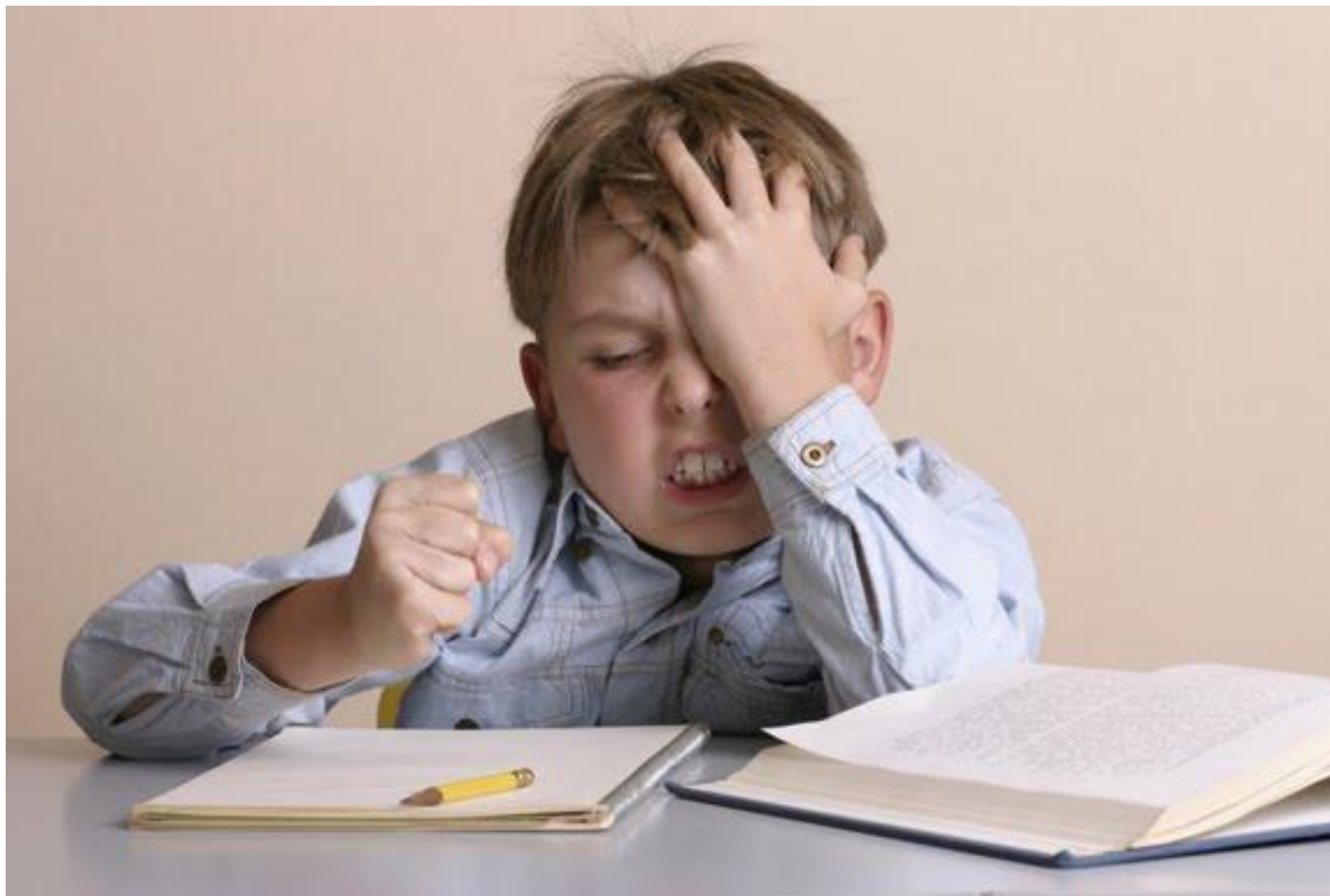


Creating a...



# This Is Hard!

---



# Workplace Health Promotion (Wellness) Works – If You Do it Right!

## 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

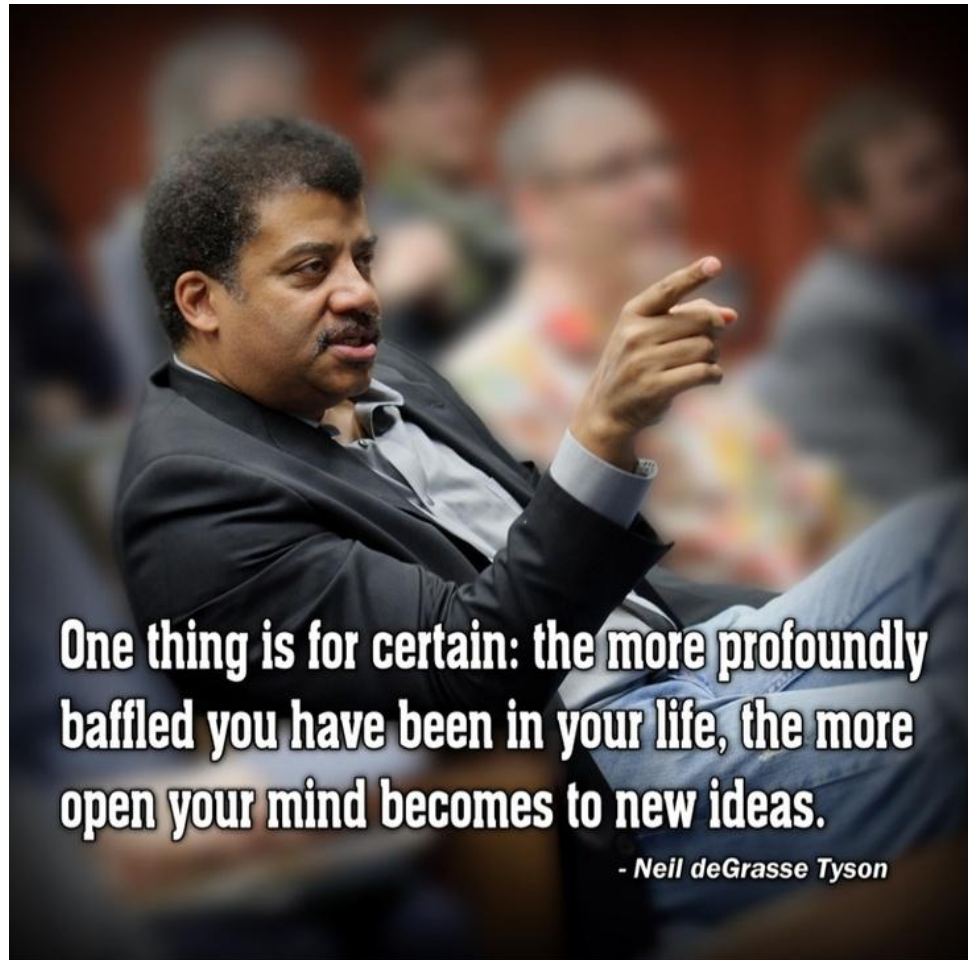
- Adherence to evidence based medicine.
- Behavior change, risk reduction, health improvement.

## QOL and Productivity Outcomes

- Improved “functioning” and productivity
- Attraction/retention – employer of choice
- Employee engagement
- Corporate social responsibility (CSR)
- Balanced scorecard

# I'm Open to New Ideas...

---



**One thing is for certain: the more profoundly  
baffled you have been in your life, the more  
open your mind becomes to new ideas.**

*- Neil deGrasse Tyson*





ofLongo