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The Population Health and Care Coordination Colloquium

The Leading Forum on Innovations in Population Health and Care Coordination

A Hybrid Conference and Internet Event

Managing the Health of a Population to Create a Culture of Wellness The Advancing Science in the Field

Ron Z. Goetzel, Ph.D., Emory University and Thomson Reuters

February 2012 – Philadelphia, PA





AGENDA

- Introductory Remarks
- The ARAMARK Journey -- Valerie Wandler
- The Johnson & Johnson Experience -- Fikry Issac
- The Advancing Science in the Field -- Ron Goetzel
- Panel Q&A





WE'RE STILL SPENDING A BOATLOAD OF MONEY ON SICK CARE



- The United States spent \$2.59 trillion in healthcare in 2010, or \$8,402 for every man, woman and child.
- Government paid \$1.2 trillion (45% of total), private businesses financed \$534 billion (21%). Employers contributed 77% to health insurance premiums.
- Health expenditures as percent of GDP:
 - ▶7.2 % in 1970
 - >17.9 in 2010
 - >19.3% in 2019 (est)

Source: Martin et al., Health Affairs, 31:1, January 10, 2012, 208



Employers' and Employees' Costs are Rising Rapidly

Average Annual Health Insurance Premiums and Worker Contributions for Family Coverage, 2005-2010

	2005	2010	Percent Increase
Worker Contribution	\$2,713	\$3,997	47%
Employer Contribution	\$8,167	\$9,773	20%
Total	\$10,880	\$13,770	27%

Source: Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2005-2010. http://ehbs.kff.org/







WHY IS HEALTH CARE SO EXPENSIVE?

Rise in spending for treated diseases (37%)



Innovation/advancing technology (pharmacologic, devices, treatments)

- Newborn delivery costs five-fold increase from 1987-2002
 - NICU, incubators, ventilators, C-sections
- New/better medicines for treating disease
 - Depression (SSRI introduction 45% treated in 1987 to 80% treated in 1997
 - Allergies (Claritan, Allegra, ...)
- · New treatment thresholds
 - Blood pressure
 - High blood glucose
 - Hyperlipidemia

Source: K.E. Thorpe, "The Rise in Health Care Spending and What to Do About It," Health Affairs 24, no. 6 (2005): 1436-1445; and K.E. Thorpe et al., "The Impact of Obesity on Rising Medical Spending," Health Affairs 23, no. 6 (2004): 480-486.



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WHY IS HEALTH CARE SO EXPENSIVE? (THORPE - PART 2)

Rise in the prevalence of disease (63%)

- About ¾ of all health care spending in the U.S. is focused on patients with one or more chronic health conditions
- Chronically ill patients only receive 56% of recommended clinical preventive health services
- And 27% of the rise in healthcare costs is associated with increases in obesity rates...







DISEASES CAUSED (AT LEAST PARTIALLY) BY LIFESTYLE

- Obesity: Cholesystitis/Cholelithiasis, Coronary Artery Disease, Diabetes, Hypertension, Lipid Metabolism Disorders, Osteoarthritis, Sleep Apnea, Venous Embolism/Thrombosis, Cancers (Breast, Cervix, Colorectal, Gallbladder, Biliary Tract, Ovary, Prostate)
- Tobacco Use: Cerebrovascular Disease, Coronary Artery Disease, Osteoporosis, Peripheral Vascular Disease, Asthma, Acute Bronchitis, COPD, Pneumonia, Cancers (Bladder, Kidney, Urinary, Larynx, Lip, Oral Cavity, Pharynx, Pancreas, Trachea, Bronchus, Lung)
- Lack of Exercise: Coronary Artery Disease, Diabetes, Hypertension, Obesity, Osteoporosis
- **Poor Nutrition:** Cerebrovascular Disease, Coronary Artery Disease, Diabetes, Diverticular Disease, Hypertension, Oral Disease, Osteoporosis, Cancers (Breast, Colorectal, Prostate)
- Alcohol Use: Liver Damage, Alcohol Psychosis, Pancreatitis, Hypertension, Cerebrovascular Disease, Cancers (Breast, Esophagus, Larynx, Liver)
- Stress, Anxiety, Depression: Coronary Artery Disease, Hypertension
- **Uncontrolled Hypertension:** Coronary Artery Disease, Cerebrovascular Disease, Peripheral Vascular Disease
- Uncontrolled Lipids: Coronary Artery Disease, Lipid Metabolism Disorders, Pancreatitis, Peripheral Vascular Disease





INSIDIOUS PROGRESSION OF DISEASE: SMOKING & ACUTE ILLNESS LEADS TO CHRONIC & CATASTROPHIC ILLNESS



A PUBLIC HEALTH SUCCESS STORY: ADULT CIGARETTE CONSUMPTION IN CALIFORNIA AND U.S. 1987-1999 (PACKS PER CAPITA)





Source: California Department of Health Services, August 2000 THOMSON REUTERS



LUNG AND BRONCHUS AGE-ADJUSTED CANCER RATES, 1988-1997



Prepared by: California Department of Health Services, Cancer Surveillance Section, September 2000.

BUT, OBESITY IS BECOMING A MUCH GREATER PROBLEM









ENVIRONMENTAL CORRELATES OF OBESITY



More driving

- Rise in car ownership
- Increase in driving shorter distances
- Less walking and bicycling

At home, more convenience

- Increase use of "labor saving" devices
- Increase in ready-made foods
- Increase in television viewing, computers, and video games

At work

• Sedentary occupational fields ("knowledge workers")

In public

More elevators, escalators, automatic doors and moving sidewalks





DRAMATIC RISE IN CHRONIC DISEASE

By Kenneth E. Thorpe, Lydia L. Ogden, and Katya Galactionova

Chronic Conditions Account For Rise In Medicare Spending From 1987 To 2006

doi: 10.1377/hlthaff.2009.0474 HEALTH AFFAIRS 29, NO. 4 (2010): -©2010 Project HOPE— The People-to-People Health Foundation, Inc.



ABSTRACT Medicare beneficiaries' medical needs, and where beneficiaries undergo treatment, have changed dramatically over the past two decades. Twenty years ago, most spending growth was linked to intensive inpatient (hospital) services, chiefly for heart disease. Recently, much of the growth has been attributable to chronic conditions such as diabetes, arthritis, hypertension, and kidney disease. These conditions are chiefly treated not in hospitals but in outpatient settings and by patients at home with prescription drugs. Health reform must address changed health needs through evidence-based community prevention, care coordination, and support for patient self-management. Kenneth E. Thorpe (kthorpe@ sph.emory.edu) is the Robert W. Woodruff Professor and Chair of the Department of Health Policy and Management, Rollins School of Public Health, Emory University, in Atlanta, Georgia.

Lydia L. Ogden is on

assignment from the Centers for Disease Control and Prevention and is currently chief of staff for the Center for Entitlement Reform and a doctoral candidate in health services research and health policy at the Rollins School of Public Health.



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% OF ADULT POPULATION TREATED, BY MEDICAL CONDITION 1987-2005: RAPID RISE IN DISEASE PREVALENCE

Medical Condition	1987	2005
Mental Disorders	5.5%	18.8%
Hyperlipidemia	1.5%	14.4%
Hypertension	13.6%	22.0%
Diabetes	4.0%	8.0%
Pulmonary Conditions (OPD, Asthma)	9.5%	18.4%
Lupus / Other Related	4.8%	6.0%
Arthritis	7.8%	13.6%
Back Problems	5.4%	13.2%
Upper GI	3.8%	10.7%
Heart Disease	8.1%	9.5%

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EMORY

Source: Thorpe, K.E., and D.H. Howard. 2006. The rise in spending among Medicare beneficiaries: the role of chronic disease prevalence and changes in treatment intensity. *Health Affairs* 25 (5):w378-w388.

LEADING CAUSES OF DEATH IN THE U.S.

Cause of Death	# of Deaths	Percentage
Heart Disease	710,760	30%
Malignant Neoplasm	553,091	23%
Cerebrovascular Disease	167,661	7%
Chronic Lower Respiratory Tract Disease	122,009	5%
Unintentional Injuries	97,900	4%
Diabetes	69,301	3%
Influenza / Pneumonia	65,313	3%
Alzheimer's	49,558	2%
Nephritis	37,251	2%
Septicemia	31,224	1%
Other	499,283	21%
Total	2,403,351	100%

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*Source: Year 2000, Mokdad et al., JAMA,291:10, March, 2004





ACTUAL CAUSES OF DEATH IN THE U.S. (2000)





THOMSON REUTERS

Source: Mokdad, et al



Cause of Death	2005
Tobacco Smoking	467,000
High Blood Pressure	395,000
Overweight – Obesity (high BMI)	216,000
Physical Inactivity	191,000
High Blood Glucose	190,000
High LDL Cholesterol	113,000
High Dietary Salt (sodium)	102,000
Low Dietary Omega-3 Fatty Acids	84,000
High Dietary Trans Fatty Acids	82,000
Alcohol Use	64,000
Low Intake of Fruits and Vegetables	58,000
Low Dietary Polyunsaturated Fatty Acids	15,000

Table 3.1.2. U.S. Deaths Related to Modifiable Risk Factors, 2005

Note. Source: Danaei et al. (2009).

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BOTTOM LINE: 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





What To Do?

- Manage disease
- Manage disability and absence
- Manage health and demand
- Manage stress
- Strengthen employee assistance programs
- Re-engineer
- Reorganize
- Create incentives
- Cut pharmacy benefits





OPPORTUNITIES FOR INTERVENTION -THE WORKPLACE – A MICROCOSM OF SOCIETY



32009 Thomson Reuters

SO, HOW DO YOU DO IT? TWO EMPLOYER CASE STUDIES





Johnson Johnson



COURTESY: JOHNSON & JOHNSON



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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 within a relatively short time window (Milliman & Robinson, 1987, Yen et al., 1992, Goetzel, et al., 1998, 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)



Improvements in the health risk profile of a population can lead to reductions in health costs (Edington et al., 2001, Goetzel et al., 1999)



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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)





POOR HEALTH COSTS MONEY



Drill Down...

- Medical
- Absence/work loss
- Presenteeism
- Risk factors





TOP 10 MOST COSTLY PHYSICAL HEALTH CONDITIONS

Medical, Drug, Absence, STD Expenditures (1999 annual \$ per eligible), by Component



Source: Goetzel, Hawkins, Ozminkowski, Wang, JOEM 45:1, 5–14, January 2003.

Disability





RESEARCH ON RISK-COST RELATIONSHIPS - NOVARTIS

JOEM • Volume 51, Number 4, April 2009

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The Relationship Between Modifiable Health Risk Factors and Medical Expenditures, Absenteeism, Short-Term Disability, and Presenteeism Among Employees at Novartis

Ron Z. Goetzel, PhD Ginger Smith Carls, MA Shaohung Wang, PhD Emily Kelly, MA Edward Mauceri, MD Daniel Columbus, MBA Ann Cavuoti, CEBS

Objective: To quantify the impact of health risks on medical care and productivity costs in an employed population. Methods: Health risk, medical care, and productivity data were obtained for 5875 Novartis employees in 2005–2006. Factor analysis was performed to identify relationships among health risks. Multiple regression analyses were applied to estimate relationships between combined risk factors and costs. Results: We found a significant and consistent association among three factors (high biometric laboratory values, cigarette and alcohol use, and poor emotional health) and increased presenteeism for both men and women and increased absenteeism for women. Medical care expenditures were 13–22% higher for men and women at risk for the high biometric laboratory values and the emotional health factor. Conclusions: There is a potential for medical and productivity savings for employers able to reduce health risks among their workers. (J Occup Environ Med. 2009;51:487–499) healthy and productive workforce is essential to business success. Although much emphasis has been "placed on optimal management of acute and chronic disease as a way to contain employer health care costs and lessen employee time lost due to illness, there is growing recognition that a more efficient approach to achieving cost savings is by promoting employee health.

Research with employers has documented the relationship between health risk status and important work-related cost and productivity outcomes, ^{1–0} and this research suggests that risk reduction among workers may be a practical way to improve these outcomes.^{10–13} Employers are interested in knowing how various risk factors can affect employee health and productivity, and eventually documenting the benefits associated with programs directed at changing these risks.

A body of evidence suggests a clear relationship between common



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RISK FACTORS AND PRESENTEEISM (N = 5,875)

Outcomes and group of health risks		Predicted Scenario	Predicted Mean	Impact on dollars or days (95% Cl)	Impact as percent difference from scanario without the risk (95% CI)
	Presenteeism		Annual Un	productive Days	
	High Biometric	Without risk(s)	0.73	0.95	130.3%
	Lab Values	With risk(s)	1.69	(0.85, 1.05)	(116.7%, 144.0%)
ALES	Alcohol /	Without risk(s)	0.77	1.67	217.0%
E Tobacco Use	Tobacco Use	With risk(s)	2.44	(1.56, 1.78)	(203.1%, 230.9%)
	Emotional Health	Without risk(s)	0.75	0.92	122.5%
	Linotional freatth	With risk(s)	1.66	(0.82, 1.02)	(109.1%, 135.9%)
	High Biometric	Without risk(s)	0.49	0.80	162.3%
	Lab Values	With risk(s)	1.29	(0.70, 0.90)	(142.2%, 182.3%)
ES	Alcohol /	Without risk(s)	0.55	1.43	258.6%
MAI	Tobacco Use	With risk(s)	1.99	(1.16, 1.71)	(209.4%, 307.8%)
	Emotional Health	Without risk(s)	0.53	0.91	171.3%
Emotic	Emotional Health	With risk(s)	1.44	(0.79, 1.03)	(149.1%, 193.6%)







THE COST OF CHRONIC DISEASE RISK-COST RELATIONSHIPS AT PEPSICO

ORIGINAL ARTICLES

The Relationship Between Health Risks and Health and Productivity Costs Among Employees at Pepsi Bottling Group

Rachel M. Henke, PhD, Ginger S. Carls, PhD, Meghan E. Short, MPH, Xiaofei Pei, PhD, Shaohung Wang, PhD, Susan Moley, BBA, Mark Sullivan, BA, and Ron Z. Goetzel, PhD

Objective: To evaluate relationships between modifiable health risks and costs and measure potential cost savings from risk reduction programs. Methods: Health risk information from active Pepsi Bottling Group employees who completed health risk assessments between 2004 and 2006 (N = 11,217) were linked to medical care, workers' compensation, and short-term disability cost data. Ten health risks were examined. Multivariate analyses were performed to estimate costs associated with having high risk, holding demographics, and other risks constant. Potential savings from risk reduction were estimated. Results: High risk for weight, blood pressure, glucose, and cholesterol had the greatest impact on total costs. A one-percentage point annual reduction in the health risks assessed would yield annual per capita savings of \$83.02 to \$103.39. Conclusions: Targeted programs that address modifiable health risks are expected to produce substantial cost reductions in multiple benefit categories.

Employees with modifiable health risks have higher medical care and productivity expenses when compared with lower risk employees.¹⁻¹⁵ Employers seeking to contain health and productivity costs are turning to workplace health promotion programs to reduce the prevalence of risk factors among their workers. Knowledge of the association between health risks and costs can help employers determine where to target workplace programs and estimate cost savings resulting from interventions. This information, in turn, can help them calculate a potential return-on-investment before making program investments.

Additional research has found that costs associated with health risks increase when productivity losses are included. Annual costs due to lost productivity have been estimated at \$1392 to \$2592 per employee at risk.⁵ Employees tend to have multiple risk factors, which can impact the magnitude of these productivity costs.^{3,5} As the direct and indirect costs associated with having health risks can be high, further research on workplace programs that aim to lower health risks and better manage health care expenditures is warranted.

This study examined the relationship between modifiable health risks and health and productivity costs among U.S. employees at the Pepsi Bottling Group (PBG). PBG is the world's largest manufacturer, seller, and distributor of Pepsi-Cola beverages and has a workforce with a large number of male, blue-collar employees. PBG has implemented various health improvement programs over the years and was awarded the C. Everett Koop National Health Award for its 'Healthy Living Program'' in 2007. Among PBG's Healthy Living initiatives are its offerings of comprehensive preventive care benefits, on-site medical clinics and screenings, lifestyle management programs, flu shot campaigns, and a local wellness champions program that works with volunteer employee leaders at each worksite to facilitate local engagement. Meaningful incentives have enhanced participation rates, and marketing and branding techniques are used to sell "health" as a product.

Study Objectives

We sought to determine the relationships between individual health risks and costs across multiple benefit program categories and to predict the cost savings from improvement in the health risk



HEALTH RISK PREVALENCE







BMI BREAKDOWN BY CATEGORY







PEPSICO – OVERWEIGHT / OBESE ANALYSIS (N=11,217)

Adjusted predicted annual costs for employees by BMI

*At least one difference significant at the 0.05 level



Difference between combined overweight/obese categories and normal weight is displayed

Source: Henke RM, Carls GS, Short ME, Pei X, Wang S, Moley S, Sullivan M, Goetzel RZ. The Relationship between Health Risks and Health and Productivity Costs among Employees at Pepsi Bottling Group. J Occup Environ Med. 52, 5, May 2010.

NHLBI MULTI-CENTER STUDY: ESTIMATED ANNUAL COSTS OF HEALTHCARE UTILIZATION, ABSENTEEISM, AND PRESENTEEISM BY BMI CATEGORY



* P < .05

Source: Goetzel RZ, Gibson TB, Short ME, Chu BC, Waddell J, Bowen J, Lemon SC, Fernandez ID, Ozminkowski RJ, Wilson MG, DeJoy DM. <u>A multi-worksite analysis of the relationships among body mass index, medical utilization, and worker productivity.</u> J Occup Environ Med. 2010 Jan;52 Suppl 1:S52-8.







EVALUATION OF WORKSITE HEALTH PROMOTION PROGRAMS — DO THEY WORK?

Worksite Health Promotion Team

Robin Soler, PhD David Hopkins, MD, MPH Sima Razi, MPH Kimberly Leeks, PhD, MPH Matt Griffith, MPH





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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

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Background: Many health behaviors and physiologic indicators can be used to estimate one's likelihood of illness or premature death. Methods have been developed to assess this risk, most notably the use of a health-risk assessment or biometric screening tool. This report provides recommendations on the effectiveness of interventions that use an Assessment of Health Risks with Feedback (AHRF) when used alone or as part of a broader worksite health promotion program to improve the health of employees.

Evidence acquisition: The Guide to Community Preventive Services' methods for systematic reviews were used to evaluate the effectiveness of AHRF when used alone and when used in combination with other intervention components. Effectiveness was assessed on the basis of changes in health behaviors and physiologic estimates, but was also informed by changes in risk estimates, healthcare service use, and worker productivity.

Evidence synthesis: The review team identified strong evidence of effectiveness of AHRF when used with health education with or without other intervention components for five outcomes. There is sufficient evidence of effectiveness for four additional outcomes assessed. There is insufficient evidence to determine effectiveness for others such as changes in body composition and fruit and vegetable intake. The team also found insufficient evidence to determine the effectiveness of AHRF when implemented alone.

Conclusions: The results of these reviews indicate that AHRF is useful as a gateway intervention to a broader worksite health promotion program that includes health education lasting ≥1 hour or repeating multiple times during 1 year, and that may include an array of health promotion activities. These reviews form the basis of the recommendations by the Task Force on Community Preventive Services presented elsewhere in this supplement.

(Am J Prev Med 2010;38(2S):S237-S262) Published by Elsevier Inc. on behalf of American Journal of Preventive Medicine

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0749-3797/00/\$17.00 doi: 10.1016/j.amepre.2009.10.030





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SUMMARY RESULTS AND TEAM CONSENSUS

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





EMORY

SUMMARY RESULTS AND TEAM CONSENSUS

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







SUMMARY RESULTS AND TEAM CONSENSUS

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





WHAT ABOUT ROI? **CRITICAL STEPS TO SUCCESS**

Financial ROI

Reduced Utilization

Risk Reduction

Behavior Change

Improved Attitudes

Increased Knowledge

Participation

Awareness



HOMSON REUTERS



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: 101377/bitbaff.2009.0626 HEALTH AFFAIRS 29 NO. 2 (2010) -© 2010 Project HOPE— The People-to-People Health oundation 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.

ering costs. Much discussion has taken to the employee.

gressional hearings.3,4

n an environment of so aring health care tive and miss fewer days of work. These benefits spending, policymakers, insurers, and may accrue at least partially to the employer employers express growing interest in (such as through improved ability to attract methods of improving health while low- workers), even if the primary benefits accrue

place about investment in disease prevention These factors may motivate the increasing inand health promotion as a way of achieving bet- terest in such programs among employers-and ter health outcomes at lower costs. President especially large employers. In 2006, 19 percent Barack Obama has highlighted prevention as a of companies with 500 or more workers reported central component of health reform, as have ma- offering wellness programs, while a 2008 survey jor congressional reform proposals.¹² Work- of large manufacturing employers reported that place-based wellness programs, which could af- 77 percent offered some kind of formal health fect prevention, have been showcased in these and wellness program.⁶⁴ Consistent with the evireform proposals, the popular press, and con- dence presented below, small firms seem slower to offer such programs, and many of the pro-This enthusiasm for workplace programs grams offered are still quite limited in scope.9

stems in part from the fact that more than 60 per-Several well-publicized case studies have sugcent of Americans get their health insurance cov- gested a positive return to employers' investerage through an employment-based plan,5 as ment in prevention. For every dollar invested well as from the recognition that many employ- in the program, the employer saves more than ees spend the majority of their waking hours in the dollar spent. The Citibank Health Managethe work place-which makes it a natural venue ment Program reported an estimated savings for investments in health. There are several rea- of \$4.50 in medical expenditures per dollar sons that employers might benefit from invest- spent on the program.²⁰ Studies from the Caliments in employee wellness. First, such pro- fornia Public Employees Retirement System grams might lead to reductions in health care (CalPERS), Bank of America, and Johnson and costs and thus health insurance premiums. Sec- Johnson have similarly estimated sizable health ond, healthier workers might be more produc- care savings from wellness programs.11-12 Despite

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RESULTS - MEDICAL CARE COST SAVINGS

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







J&J STUDY – HEALTH AFFAIRS, MARCH 2011

WELLNESS

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 o2011 Project HOPE—

 The People-to-People Health

 Foundation, Inc.

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

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

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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.

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Fik Isaac is executive director of global health services at Johnson & Johnson and chief medical officer, Wellness & Prevention, Inc.—Johnson & Johnson. 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



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HEALTH

JOHNSON & JOHNSON – RISK-COST ANALYSIS

CME AVAILABLE FOR THIS ARTICLE AT ACOEM.ORG

The Impact of Weight Gain or Loss on Health Care Costs for Employees at the Johnson & Johnson Family of Companies

Ginger Smith Carls, PhD, Ron Z. Goetzel, PhD, Rachel Mosher Henke, PhD, Jennifer Bruno, BS, Fikry Isaac, MD, and Janice McHugh, DBA, RN, COHN-S

Objective: To quantify the impact of weight gain or weight loss on health care costs. **Methods:** Employees completing at least two health risk assessments during 2002 to 2008 were classified as adding, losing, or staying at high/low risk for each of the nine health risks including overweight and obesity. Models for each risk were used to compare cost trends by controlling for employee characteristics. **Results:** Employees who developed high risk for obesity (n = 405) experienced 9.9% points higher annual cost increases (95% confidence interval: 3.0%–16.8%) than those who remained at lower risk (n = 8015). Employees who moved from high to lower risk for obesity (n = 384), experienced annual cost increases that were 2.3% points lower (95% confidence interval: -7.4% to 2.8%) than those who remained high risk (n = 1699). **Conclusions:** Preventing weight gain through effective employee health promotion programs is likely to result in cost savings for employers.

Learning Objectives

- Review the current status of research into the cost implications of worker overweight and obesity and the cost savings resulting from weight reduction programs.
- Summarize the patterns of change in health risks observed among Johnson & Johnson employees participating in multiple health risk assessments (HRAs).
- Discuss the study implications for lowering health care costs and achieving a positive return-on-investment from obesity prevention programs.

Journal of Occupational and Environmental Medicine, 53;11, Jan. 2011



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MULTIVARIATE RESULTS

Outcome	Category	Estimated Costs 2002	Percent Growth	Impact (relative to keeping the same status)	
	Lose Risk (N=384)	\$4,204	7.1%	-2.3%	
	Stay at Risk (N=1,699)	\$3,670	9.4%		
DIVII	Add Risk (N=405)	\$2,978	17.8%	0.0%	
	Stay Not at Risk (N=8,015)	\$2,920	7.9%	9.9%	





VANDERBILT UNIVERSITY

CME AVAILABLE FOR THIS ARTICLE AT ACOEM.org

Seven-Year Trends in Employee Health Habits From a Comprehensive Workplace Health Promotion Program at Vanderbilt University

Daniel W. Byrne, MS, Ron Z. Goetzel, PhD, Paula W. McGown, MSN, MAcc, RN, FNP-BC, CPA, Marilyn C. Holmes, MS, RD, LDN, Meghan Short Beckowski, MPH, Maryam J. Tabrizi, MS, Niranjana Kowlessar, PhD, and Mary I. Yarbrough, MD, MPH, FACOEM, FACPM

Objective: To assess long-term changes in health risks for employees participating in Vanderbilt University's incentive-based worksite wellness program. **Methods:** Descriptive longitudinal trends were examined for employees' health risk profiles for the period of 2003 to 2009. **Results:** The majority of risk factors improved over time with the most consistent change occurring in physical activity. The proportion of employees exercising one or more days per week increased from 72.7% in 2003 to 83.4% in 2009. Positive annual, monotonic changes were also observed in percentage for nonsmokers and seat belt usage. Although the largest improvements occurred between the first two years, improvements continued without significant regression toward baseline. **Conclusions:** This 7-year evaluation, with high participation and large sample size, provides robust estimates of health improvements that can be achieved through a voluntary incentive-based wellness program.

Learning Objectives

- Discuss the characteristics of Vanderbilt University's workplace health promotion program, "Go For The Gold" (GFTG).
- Identify long-term effects on health risk factors such as physical activity, smoking, and seat belt use.
- Discuss factors leading to the overall health improvement and risk reduction among GFTG participants.





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SEVEN YEAR AGGREGATE AND COHORT ANALYSIS

TABLE 1. Cha	racteristics of the	e Participants—A	Aggregate and C	Cohort Data for 2	7 Years		
Year	1 (2003)	2 (2004)	3 (2005)	4 (2006)	5 (2007)	6 (2008)	7 (2009)
Benefits-eligible employees*	15,070	16,097	17,247	18,701	19,810	20,494	21,701
Aggregate participants	(n = 10,248)	(<i>n</i> = 10,463)	(n = 12,444)	(n = 14,698)	(n = 15,811)	(n = 16,764)	(n = 17,335)
Participation rate	68%	65%	72%	79%	80%	82%	80%
Age (yrs)†	40.4 ± 10.9	40.6 ± 11.0	41.4 ± 11.1	40.7 ± 11.3	40.8 ± 11.5	40.9 ± 11.7	41.2 ± 11.7
	(18-83)	(18-79)	(18-80)	(18-81)	(18-82)	(18-82)	(18-83)
Gender							
Male	3,275 (32.0%)	3,260 (31.2%)	3,899 (31.3%)	4,611 (31.4%)	4,880 (30.9%)	5,153 (30.7%)	5,327 (30.7%)
Female	6,973 (68.0%)	7,203 (68.8%)	8,545 (68.7%)	10,087 (68.6%)	10,931 (69.1%)	11,611 (69.3%)	12,008 (69.3%)
Cohort participar	nts (N = 3745), part	icipation rate 48%	(7,802 benefits eli	gible employees all	7 yrs)		
Age (yrs)†	43 ± 9.4 (19–77)	$44 \pm 9.4 (20-78)$	45 ± 9.4 (21–79)	$46 \pm 9.4 (22 - 80)$	47 ± 9.4 (23–81)	48 ± 9.4 (24–82)	49 ± 9.4 (25–83)
Gender							
Male	1,098 (29.3%)	1,098 (29.3%)	1,098 (29.3%)	1,098 (29.3%)	1,098 (29.3%)	1,098 (29.3%)	1,098 (29.3%)
Female	2,647 (70.7%)	2,647 (70.7%)	2,647 (70.7%)	2,647 (70.7%)	2,647 (70.7%)	2,647 (70.7%)	2,647 (70.7%)

*Total number of benefits-eligible employees defined as those eligible for health care coverage, as determined by Human Resources Benefits on the last day of the GFTG Program year (November 30, all active, full-time, regular faculty and staff). Participation in GFTG Program was defined as completing the HRA in that calendar year. [†]Age is mean ± SD (range).

PHYSICAL ACTIVITY



Physical Activity Trend

VU: Vanderbilt University

FIGURE 1. Physical activity trends for the aggregate and cohort groups of Vanderbilt's GFTG Program and comparison to national and Tennessee norms from Behavioral Risk Factor Surveillance System. For the Vanderbilt data, the HRA question was "How many days per week do you engage in aerobic exercise of at least 20 to 30 minutes duration (fitness walking, cycling, jogging, swimming, aerobic dance, or active sports)?"

OBESITY



VU: Vanderbilt University

FIGURE 4. Obesity trends for the aggregate and cohort groups of Vanderbilt's GFTG Program and comparison to national and Tennessee norms from Behavioral Risk Factor Surveillance System. Obesity was defined as a BMI \geq 30.



SMOKING

VU: Vanderbilt University

FIGURE 2. Tobacco use trends for the aggregate and cohort groups of Vanderbilt's GFTG Program and comparison to national and Tennessee norms from Behavioral Risk Factor Surveillance System. The HRA question identified those who currently smoke cigarettes daily. Former smokers, pipe, cigar, and chewing tobacco were not included.



Identifying "Best Practices" in Workplace Health Promotion: What Works?

Source: Goetzel RZ, Shechter D, Ozminkowski RJ, Reyes M, Marmet PF, Tabrizi M, Chung Roemer E. Critical success factors to employer health and productivity management efforts: Findings from a benchmarking study. <u>Journal of Occupational and Environmental Medicine</u>. (2007) February; 49:2, 111-130.





Leadership Commitment

- Leading by example with buy-in by middle managers
- "Healthy company" norm/culture
- Explicit connection to the core principles of the organization
- Employee-driven advisory board
- Specific program goals and objectives – with realistic expectations
- Alignment of organizational, HR and health promotion policies/practices
- Sustainability future opientation LIN

ΗΕΑΙΤΗ





Incentives

- Incentives to participate (not change biometrics)
- Accountability at all levels linked to rewards
- Effective marketing and communication (multichannel)





Effective Screening and Triage

- Casting a wide net to identify the highest risk individuals
- Providing "public health" interventions to keep people at low risk
- Triaging individuals into programs that produce greatest impact/payoff
- Protecting confidentiality
- Coordinating with providers and community resources







State-of-the-Art Intervention Programs

- Theory and evidence-based (e.g., Bandura, Prochaska, Lorig, Strecher, Glasgow)
- Tailored and individualized interventions
- Balancing high touch with high tech
- Individual and Environmental/ecological interventions
- Effective, reliable, valid tools





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Effective Implementation

- Integrate programs insure vendor (stakeholder) engagement
- Accessible/attractive programs
- Start simple pilot grow on success
- Multi-component -- variety of topics and engagement modalities
- Integrate staff into the fabric of the organization
- Spend the right amount of money to achieve a desired ROI









WHAT'S NEXT?



•Tracking organizational health and creating "healthy company" cultures – creating and validating Workforce Health and Human Performance Indices

•Making health promotion fun, engaging, energizing, purposeful

•Leveraging social networks

•Applying principles of behavioral economics to "nudge" people into adopting healthy lifestyles

Increasing tailoring applications so that health is individualized

•Experimenting with alternative incentive structures – but ultimately moving from external to internal incentives

•Scaling health promotion so that small employers can do what the "big boys" do



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